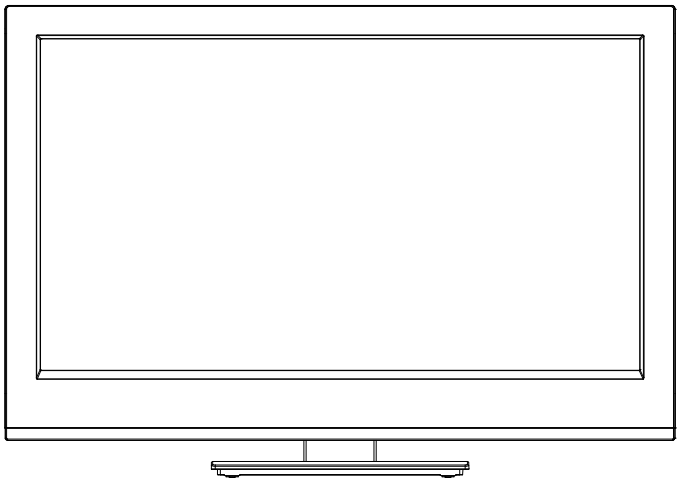
JVC

LT-22HG45E

SERVICE MANUAL

22" LED TV



ORIGINAL
MFR'S VERSION A

Design and specifications are subject to change without notice.

IMPORTANT SERVICE SAFETY INFORMATION

Operating the receiver outside of its cabinet or with its back removed involves a shock hazard. Work on these models should only be performed by those who are thoroughly familiar with precautions necessary when working on high voltage equipment.

Exercise care when servicing this chassis with power applied. Many B plus and high voltage RF terminals are exposed which, if carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, escutcheon, picture tube dag and tuner cluster when operating the chassis.

These receivers have a "polarized" AC line cord. The AC plug is designed to fit into standard AC outlets in one direction only. The wide blade connects to the "ground side" and the narrow blade connects to the "hot side" of the AC line. This assures that the TV receiver is properly grounded to the house wiring. If an extension cord must be used, make sure it is of the "polarized" type.

Since the chassis of this receiver is connected to one side of the AC supply during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on these types of equipment.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

When removing springs or spring mounted parts from the tuner, tuner cluster or chassis, shatterproof goggles must be worn. Keep others without shatterproof goggles away.

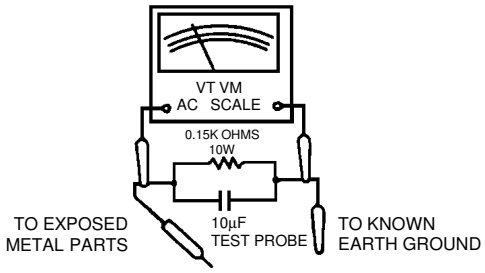
Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Replace all protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads, knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 120V AC receptacle. (Do not use an Isolation Transformer during these checks.) All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a nonpolarized adapter plug must be used only for the purpose of completing these checks.)

If available, measure current using an accurate leakage current tester. Any reading of 0.35mA or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.

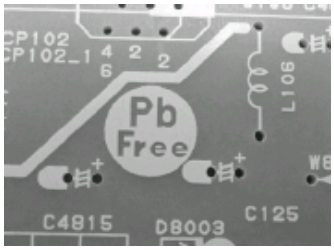
If a reliable leakage current tester is not available, this alternate method of measurement should be used. Using two clip leads, connect a 1500 ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with a known earth ground, such as a water pipe or conduit and the metal part to be checked. Use a VTVM or VOM with 1000 ohms per volt, or higher, sensitivity to measure this AC voltage drop across the resistor. Any reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the receiver to the owner.



ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 86°F~104°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be careful not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

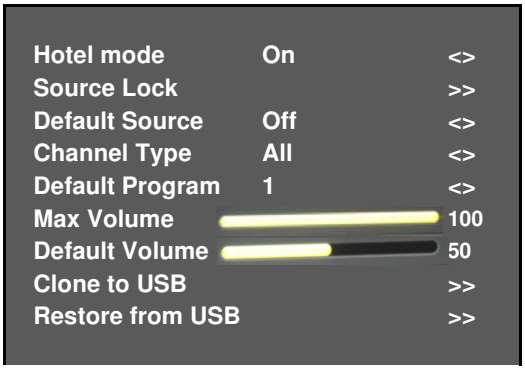
Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

HOTEL MODE FUNCTION

To set the Hotel mode, please follow the steps below.

1. Press the MENU ---> 1147 button on the remote control.
2. Press the DOWN button on the remote control,
3. Select the "Setup" menu , then press ENTER button.
4. Select the "Hotel Mode" menu, Select "ON".
5. The Hotel mode setting menu will appear.
6. Using the UP/DOWN button on the remote control, select the desired mode. Then press the ENTER button.
7. Using the LEFT/RIGHT button on the remote control, set the mode to desired setting.
8. The Hotel mode has now been set up.



To reset the Hotel mode, please follow the steps below.

1. Press the MENU ---> 1147 button on the remote control.
2. Press the DOWN button on the remote control,
3. Select the "Setup" menu , then press ENTER button.
4. Select the "Hotel Mode" menu.
5. The setting items has now been returned to initial value.

Setting item	Setting value	Initial value	FUNCTION
Source Lock	ANTENNA/CABLE/AV COMPONENT/SCART/ PC/HDMI/USB	——	Setting Input skip, combine with "Default Source".
Default Source	ANTENNA/CABLE/AV COMPONENT/SCART/ PC/HDMI/USB	OFF	Setting Input Source, combine with "Source Lock" If select "Source Lock" for this function disappear.
Channel Type	ANTENNA/CABLE/AV COMPONENT/SCART/ PC/HDMI/USB	1	Setting of the CH if select "Default Source" to TV input.
Default Program	1~21	21	Setting of the CH if select "Default Source" to TV input.
Max volume	0~100	100	Setting of the maximum volume value.
Default Volume	0~50	50	Setting volume at Power on.
Clone to USB	——	——	Setting of the Hotel Mode return factory setting.
Restore from USB	——	——	Setting of the Password.

GENERAL SPECIFICATIONS

G-1	**TV System**	LCD	LCD Size / Visual Size		21.53 inch / 546.8mmV
			LCD Type		Color TFT LCD
			Number of Pixels		1920(H) x 1080(V)
			Double Scan		No
			View Range	Left/Right	85/85 degree
				Up/Down	80/80 degree
			Bright Dot		n≦3
			Zero Bright Dot Ratio		70% above
		Color System			PAL / SECAM
		Speaker			2 Speaker
			Position		Bottom
			Size		1.0 x 2.7 inch
			Impedance		8 ohm
		Sound Output	MAX		2.0W + 2.0W
			10%(Typical)		---
		NTSC3.58+4.43 /PAL60Hz			Yes
G-2	**Tuning System**	Broadcasting System	Analog		PAL(B/G, D/K, I), SECAM(B/G, D/K)
			Digital		DVB-T
		Tuner and	System		1Tuner (Analog+Digital)
		Receive CH	Destination		UK, I.R., CCIR Hyper+France CATV
		CH Coverage	Analog		45.75~858MHz
			Digital		E2~E69
		Intermediate Frequency	Analog		BG / II / DK
				Picture(FP)	38.9 / 38.9 / 38.9MHz
				Sound(FS)	33.4 / 32.9 / 32.4MHz
				FP-FS	5.5 / 6.0 / 6.5MHz
			Digital		DVB-T 36.167MHz
		Auto Tuning Method			ALL Band (Not C.C.I.R. CH Plan)
		Preset CH			4000 Service in total of Analog and Digital.
		Stereo/Dual TV Sound			Nicam/A2 Dual
		Tuner Sound Muting			Yes
G-3	**Power**	Power Source	AC		220-240V AC 50Hz
			DC		---
		Power Consumption		at AC	31 W at AC 230 V 50 Hz
				at DC	--
			Stand by (at AC)	w/ EPG Timer	--
				w/o EPG Timer	0.49 W at AC 230 V 50 Hz
				Per Year	-- kWh/Year
		Protector	Power Fuse		Yes
G-4	**Regulation**		Safety		CE(EN60065:2002+AMD.11:2008)
			Radiation		CE
			X-Radiation		---
G-5	**Temperature**		Operation		+5°C ~ +40°C
			Storage		-20°C ~ +60°C
			Space Around Unit		100mm (4inch)
G-6	**Operating Humidity**				Less than 80% RH
G-7	**OSD Language**				English, Spanish, German, French, Italian, Swedish Dutch, Russian, Portuguese, Turkish, Greek, Finnish Hungarian, Polish, Danish, Norwegian, Czech, Slovak
G-8	**Clock and Timer**	Sleep Timer	Max Time		120 Min
			Step		10 / 20 / 30 / 40 / 50 / 60 / 90 / 120 Min
		On/Off Timer	Program(On Timer / Off Timer)		1 Program / 1 Program
		Timer Back-up (at Power Off Mode)	more than		-- Min Sec
		EPG Timer Events			--

GENERAL SPECIFICATIONS

G-9	**Remote Control**	Unit		RC-TR
		Glow in Dark Remocon		Yes
		Remocon Format		ORION
		Format		NEC
		Custom Code		71-8E h
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		41 Keys
		Keys	Power (Stand By)	Yes
			Information	Yes
			Audio Ⅰ/Ⅱ	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			Input Select	Yes
			Guide(EPG)	Yes
			Menu	Yes
			Return	Yes
			Enter / CH List	Yes
			↑	Yes
			↓	Yes
			←	Yes
			→	Yes
			Mute	Yes
			Picture Size	Yes
			Volume Up	Yes
			Volume Down	Yes
			TV	Yes
			MEDIA	Yes
			Freeze	No
			Quick View	No
			Play	No
			Stop	No
			Pause	No
			Play Mode	Yes
			Rec	No
			T-Rec	No
		T'TEXT Keys	Subtitle	Yes
			CH Up / Page Up	Yes
			CH Down / Page Down	Yes
			Freeze / Hold	Yes
			Quick View / Sub Page	Yes
			Search- / Teletext	Yes
			Play / Reveal	Yes
			Search+ / F.T.B	Yes
			Red/Skip-	Yes
			Green/Pause	Yes
			Yellow/Stop	Yes
			Cyan/Skip+	Yes

GENERAL SPECIFICATIONS

G-10	**Features**	Power On Memory		Yes	
		Auto Shut Off		Yes	
		Just Clock Function			No
		Game Position			No
		DNR		Yes	
				3D	
		Comb Filter		Yes	
				3D	
		Auto Set Up (Fast installation)	Language	Yes	
			Country	Yes	
			TV Location	Yes	
			Auto Power Off	Yes	
			E-POP Demo		No
			Tuner Mode	Yes	
			Auto Tuning (Analog/DVB-T, DVB-C)	Yes	
			CH sort	Yes	
			ATS	Yes	
			Auto clock (Digital tuner)	Yes	
			Plug in start	Yes	
		Picture Setting(TV)	Picture Mode	Yes	
			Brightness , Contrast , Color	Yes	
			Tint	Yes	
			Sharpness	Yes	
			DNR	Yes	
			Color Temperature	Yes	
			Backlight Control	Yes	
			MPEG NR	Yes	
			DBC (Dynamic Backlight Control)		No
			Film Mode		No
		Picture Setting(PC)	Picture Mode	Yes	
			Brightness , Contrast , Color	Yes	
			HOR POSITION , VER POSITION	Yes	
			PHASE , CLOCK	Yes	
			AUTO ADJUST	Yes	
			RED , GREEN , BLUE		No
			DNR		No
			Color Temperature	Yes	
			Backlight	Yes	
			WXGA INPUT		No
			WVGA INPUT		No
		Audio	Sound Mode		No
			Tone Control (Bass/Treble/Balance)	Yes	
			Surround	Yes	
			Equalizer	Yes	
			Speaker		No
			Stable Sound	Yes	
			BBE		No
			SRS WOW (SRS 3D/Focus/Tru Bass)		No
			Variable Audio Out		No
		Tuning	Auto Tuning (Analog/Digital)	Yes	
			Manual Tuning (Analog/Digital)	Yes	
			Update Scan (Analog/Digital)		No
			TV Connection	Yes	
			CH Skip (Analog/Digital)	Yes	
			CH Sort (Analog/Digital)	Yes	
			CH Edit (Analog/Digital)	Yes	
			Clean CH List (Analog/Digital)	Yes	
			Fine Tuning (Analog)	Yes	
		Lock	System Lock	Yes	
			Channel Lock	Yes	
			Parental Lock (Digital)	Yes	
			Hotel Lock	Yes	
		Screen Saver	Inversion		No
			Full White		No
			Screen Saver	Yes	
			Static Image		No

GENERAL SPECIFICATIONS

T'Text				Yes
			Text type	Fastext / Toptext
			Text Language	English, German, Swedish, Finnish, Hungarian, Italian, French, Portuguese, Spanish, Czech, Slovak, Polish, Estonian, Lettish, Lithuanian, Slovenian, Rumanian, Russian, Ukrainian, Turkish, Greek, Hebrew, Farisi Arabic, Danish, Flemish, Icelandic, Byelorussian
Text and Picture				No
PVR			Timeshift	No
			Timer Recording	No
			EPG Recording	No
USB Media Player	Photo			JPEG (.jpg/.jpeg), BMP (.bmp), PNG (.png)
	Music			WMA (.wma), WAVE (.wav), AAC-LC (.m4a) HE-AAC (.m4a), MPEG1 (.mp2), MPEG4 (.m4a)
	Video		Container	AVI (.avi), MKV (.mkv), MP4 (.mp4/,m4v), PS (.mpg/.mpeg), TS (.ts/.tp/.trp), VOB (.vob)
			Video Codec	Xvid, MPEG1, MPEG2, MPEG4 SP/ASP, H.264 MJPEG
			Audio Codec	MPEG1, MPEG2, MPEG4, AAC, AAC-LC HE-AAC, PCM/ADPCM, AC3
			DivX DMF Support	No
	Text			Text (.txt)
Internet			Hbb TV	No
			BBC iPLAYER	No
Wide Mode (AUTO/4:3/16:9/Zoom1/Zoom2/1:1)				Yes
CH Label				Yes
Reset TV Setting				Yes
HD Zoom				Yes
Picture Scroll (Vertical Position)				No
PFC(Power Factor circuit)				No
Freeze frame				Yes
Plug and Play				No
Power Management				Yes
Hearing Impaired				Yes
Audio Description				Yes
Power On LED				No
HDMI Mode				Yes
PC Mode				Yes
Blue Back				Yes
Scart Spec	Scart1		AV in	Yes
			AV out	Yes (A.Tuner/D.Tuner)
			S-Video in	Yes
			RGB in	Yes
	Scart2		AV in	No
			AV out	No
			S-Video in	No
			RGB in	No
Digital Text (VBI teletext)				Yes
MHEG-5				No
MHP				No
EPG (BBC type 8Days Digital tuner only)				Yes
OAD (Over Air Download)				Yes
CI+				No
Common Interface (Digital tuner only)				Yes
Rec Screen Status				No
Ch sorting based on Ch List (Digital/Germany only)				Yes
Rename Carrier (Digital)				No
Edit Event Timer				No
Software Update via CI Slot				No
Preference Language (Audio/Subtitle/Digital Service)(Digital)				Yes
DVB Subtitle (Digital)				Yes
Clock				Yes
DST				No
Signal Status				Yes

GENERAL SPECIFICATIONS

Digital Out	Dolby Digital	Dolby Digital
	Dolby Digital Plus	Dolby Digital
	MPEG	PCM
	HE AAC	PCM
Decode(Down Mix)	Dolby Digital	Yes
	Dolby Digital Plus	Yes
	MPEG	Yes
	HE AAC	Yes
PC Monitor Input		Yes
	VGA (640x480)	Yes (60Hz)
	VGA (720x400)	No (Possible to Display)
	WVGA (848x480)	No
	SVGA (800x600)	Yes (60Hz)
	XGA (1024x768)	Yes (60Hz)
	WXGA (1280x768)	Yes (60Hz)
	WXGA (1280x720)	Yes (60Hz)
	WXGA (1360x768)	Yes (60Hz)
	SXGA (1280x1024)	Yes (60Hz)
	WXGA+ (1440x900)	Yes (60Hz)
	WSXGA+ (1680x1050)	No (Possible to Display)
	FULL HD (1920x1080)	Yes (60Hz)
HDMI Input		Yes
	VGA (640×480)	Yes (60Hz)
	VGA (720x400)	No (Possible to Display)
	WVGA (848x480)	No
	SVGA (800x600)	Yes (60Hz)
	XGA (1024x768)	Yes (60Hz)
	WXGA (1280x768)	Yes (60Hz)
	WXGA (1280x720)	Yes (60Hz)
	WXGA (1360x768)	Yes (60Hz)
	SXGA (1280x1024)	Yes (60Hz)
	WXGA+ (1440x900)	Yes (60Hz)
	WSXGA+ (1680x1050)	No (Possible to Display)
	FULL HD (1920x1080)	Yes (60Hz)
	720×480i (4:3)	Yes (60Hz)
	720×480i (16:9)	Yes (60Hz)
	720×480p (4:3)	Yes (60Hz)
	720×480p (16:9)	Yes (60Hz)
	720×576i (4:3)	Yes (50Hz)
	720×576i (16:9)	Yes (50Hz)
	720×576p (4:3)	Yes (50Hz)
	720×576p (16:9)	Yes (50Hz)
	1280×720p	Yes (50/60Hz)
	1920×1080i	Yes (50/60Hz)
	1920×1080p	Yes (24/50/60Hz)
	CEC(ORION Standard)	No
	Deep Color	No
	xvYCC	No
Component Input		Yes
	720×480i (4:3)	Yes (60Hz)
	720×480i (16:9)	Yes (60Hz)
	720×480p (4:3)	Yes (60Hz)
	720×480p (16:9)	Yes (60Hz)
	720×576i (4:3)	Yes (50Hz)
	720×576i (16:9)	Yes (50Hz)
	720×576p (4:3)	Yes (50Hz)
	720×576p (16:9)	Yes (50Hz)
	1280×720p	Yes (50/60Hz)
	1920×1080i	Yes (50/60Hz)
	1920×1080p	No (Possible to Display)
Wall Mount	Size W x H(mm)	Yes (75 x 75)
	Screw Size	M4 x 10
Stand	Tilt	No
	Swievel	No

GENERAL SPECIFICATIONS

G-11	**Accessories**	Owner's Manual	Language	English/Czech/Slovak/Hungarian/Polish
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Rod Antenna		No
			Poles	-
			Terminal	-
		Loop Antenna (W/ Antenna Change Plug)		No
			Terminal	-
		DVB-T Antenna		No
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Quick Set-up Sheet		Yes
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
			OEM Brand	No
		AC Adapter		No
		AC Cord (for AC Adapter)		No
		AC Cord		Yes
		AV Cord (2Pin-1Pin)		No
		HDMI-DVI Cable		No
		3 in 1Mini Pin Cable (Y(CVBS)/Pb/Pr)		Yes
		Registration Card		No
		300 ohm to 75 ohm Antenna Adapter		No
		Stand Screw		Yes (2pcs)
		Stand		Yes
		Frame Stand		No
G-12	**Interface**	Switch	Power	Yes
			System Select	No
			Main Power SW	No
			Channel Up / Menu Up	Yes
			Channel Down / Menu Down	Yes
			Volume Up / Menu >	Yes
			Volume Down / Menu <	Yes
			Menu	Yes
			Play	No
			Stop	No
			Eject	No
			Input Select/Enter	Yes
		Indicator	Power/Stand-by	Yes (Blue / Red)
			On Timer	No

GENERAL SPECIFICATIONS

	Terminals	Side	Video Input 1	Mini Pin Jack(φ3.5)
			Audio Input 1	RCA x 2(L, R)
			S- Input 1	No
			Video Input 2	No
			Audio Input 2	No
			S- Input 2	No
			Video Output	No
			Audio Output	No
			Digital Audio Out (Coaxial)	Yes
			Euro Scart (21Pin)	No
			Component In	Mini Pin Jack(φ3.5) (CVBS Mini Pin Jack Alternative)
			Audio Input (Component In use)	Composite Audio Input Alternative
			HDMI Input 1	Yes
			Audio Input (HDMI/DVI In use)	PC Monitor Audio Input Alternative
			USB (Media)	Yes
			Sub Woofer Output	No
			Diversity	No
			Ext Speaker	No
			DC Jack 12V(Center +)	No
			VHF/UHF Antenna Input	No
			Headphone	Yes
			CI Card Slot	Yes
			AC Inlet	Yes
			PC Monitor Input (D-Sub)	No
			Audio Input	No
		Rear	Euro Scart (21Pin)	Yes
			Digital Audio Out (Coaxial)	No
			VHF/UHF Antenna Input	DIN Type
			PC Monitor Input (D-Sub)	Yes
			Audio Input	Mini Pin Jack(φ3.5), STEREO
G-13	**Set Size**		Approx. W x D x H (mm)	533.2 x 143.0 x 381.2
			w/o Stand,Handle Approx. W x D x H (mm)	533.2 x 48.5 x 353.2
G-14	**Weight**		Net Approx.	3.5kg (7.7 lbs)
			Net w/o Stand,Handle Approx.	3.3kg (7.3 lbs)
			Gross Approx.	4.5kg (9.9lbs)
			Gross w/Master Carton (Approx.)	--- kg (--- lbs)
G-15	**Carton**	Master Carton		No
			Content	---- Sets
			Material	-- /--
			Dimensions W x D x H(mm)	-- x -- x --
			Description of Origin	No
		Gift Box		Yes
			Material	Single/White
			Dimensions W x D x H(mm)	620 x 129 x 452
			Design	As per Buyer's
			Description of Origin	No
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	80
		Container Stuffing		1650 Sets/45' Trailer
		w/Pallet		Yes
		w/Wrapping		Yes
G-16	**Material**	Cabinet	Cabinet Front	PC+ABS 94V0 NON-HALOGEN
			Cabinet Rear	PS 94V0 NON-DECABROM
			Stand	PC+ABS 94V0 NON-HALOGEN
		PCB	Non-Halogen	No
			Eyelet	Yes
G-17	**Environment**	Environmental standard requirement		Green procurement of JVC
		Pb- Free		Phase3(PHASE3A)
			Measures for Whisker	Yes
		WEEE		Yes

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

CAUTION
Be careful not to remove the LVDS cable forcibly, because the LVDS cable may be damaged.

1-1: STAND ASS'Y (Refer to Fig. 1-1)

1. Remove the 3 screws (1).
2. Remove the Stand Ass'y in the direction of arrow.

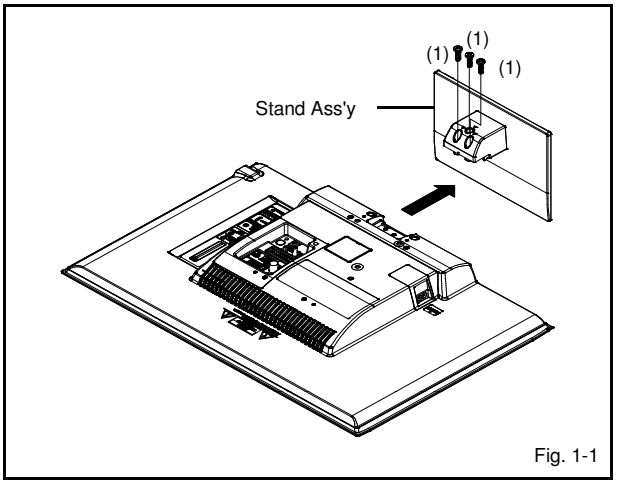


Fig. 1-1

1-2: BACK CABI ASS'Y (Refer to Fig. 1-2)

1. Remove the screw (1).
2. Remove the 3 screws (2).
3. Remove the Back Cabi Ass'y in the direction of arrow.

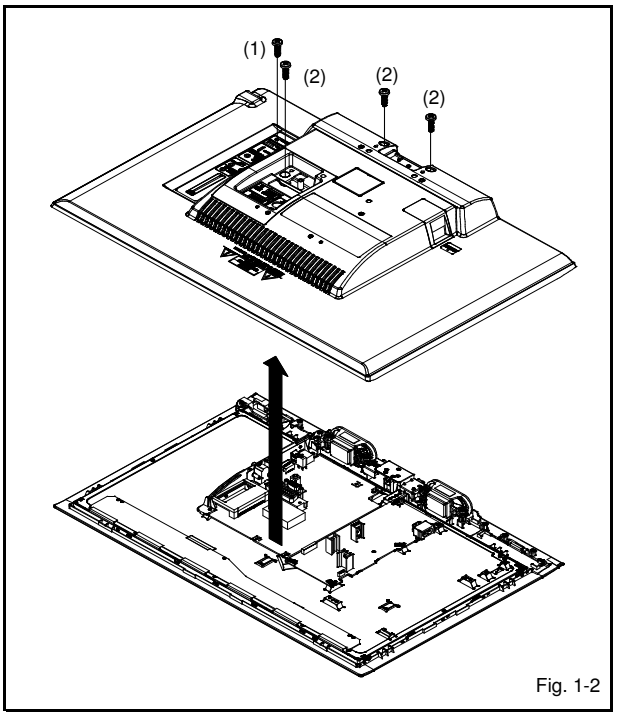


Fig. 1-2

1-3: MAIN PCB (Refer to Fig. 1-3)

1. Disconnect the following connectors: **(CN2, CN3, CN5, CN6, CN11 and CN17)**.
2. Remove the screw (1).
3. Remove the 2 screws (2).
4. Remove the Plate Jack in the direction of arrow (A).
5. Remove the Shield Jack in the direction of arrow (B).
6. Remove the 4 screws (3).
7. Remove the Main Unit in the direction of arrow (C).

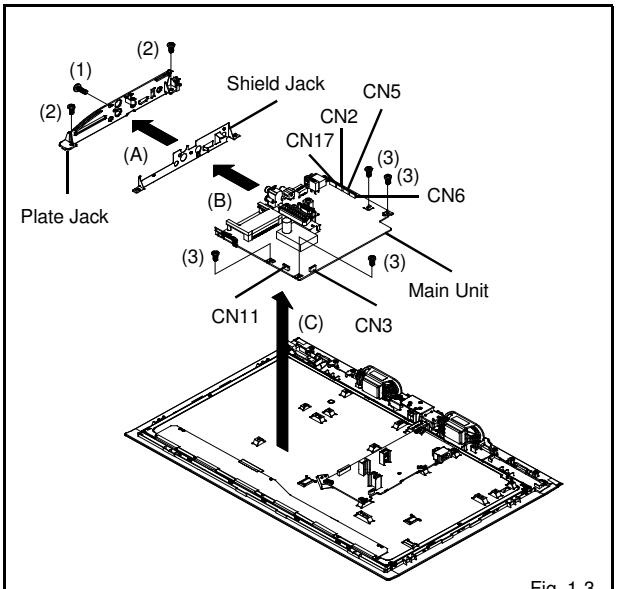


Fig. 1-3

1-4: POWER PCB (Refer to Fig. 1-4)

1. Disconnect the following connector: **(CP7001)**.
2. Remove the 6 screws (1).
3. Remove the Power PCB in the direction of arrow.

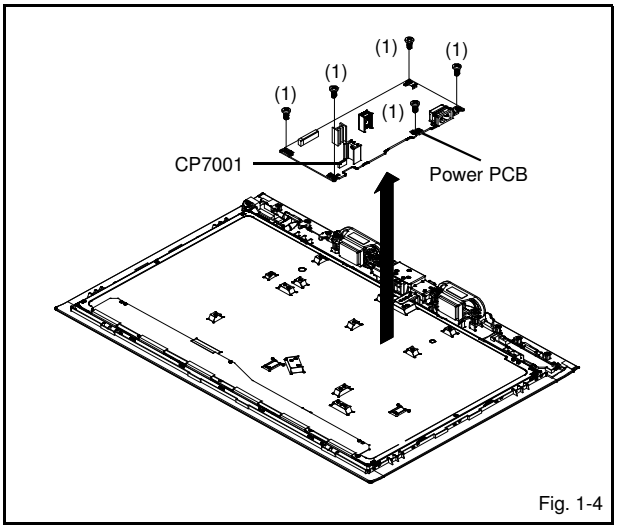


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: REMOCON PCB / LED PCB / OPERATION PCB
(Refer to Fig. 1-5)

1. Remove the Remocon PCB in the direction of arrow (A).
2. Remove the screw (1).
3. Remove the Angle Hinge in the direction of arrow (B).
4. Unlock the 2 supports (1).
5. Remove the LED PCB in the direction of arrow (C).
6. Remove the Operation PCB in the direction of arrow (D).

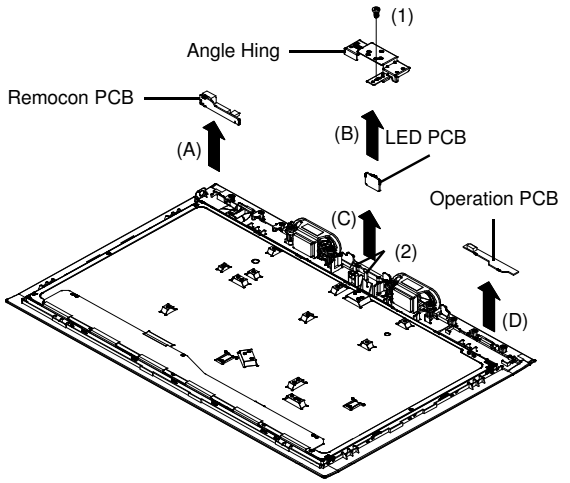


Fig. 1-5

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 2-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

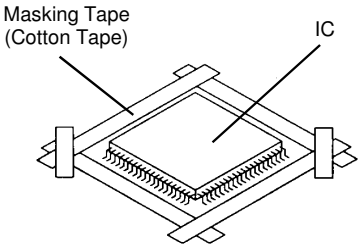


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 2-2.)**

   NOTE

   Do not rotate or move the IC back and forth , until IC can move back and forth easily after desoldering the leads completely.

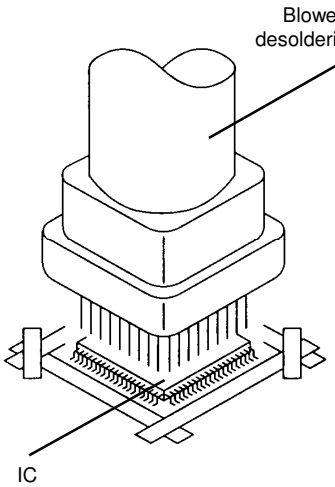


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 2-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

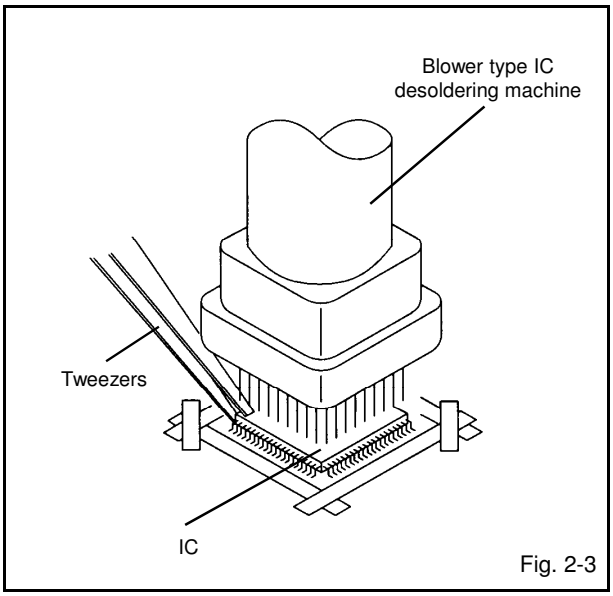


Fig. 2-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 2-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

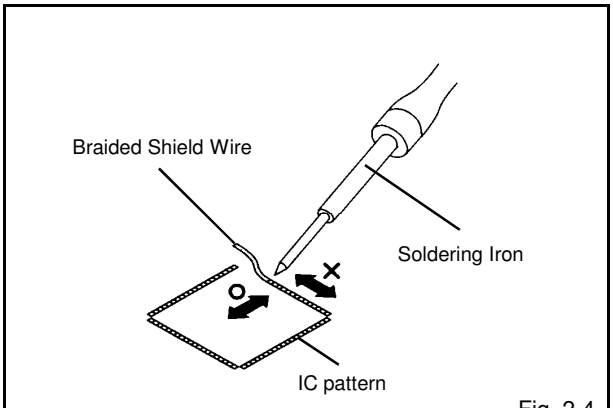


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 2-5.)**

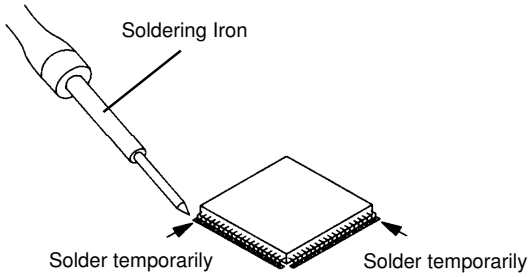


Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 2-6.)**

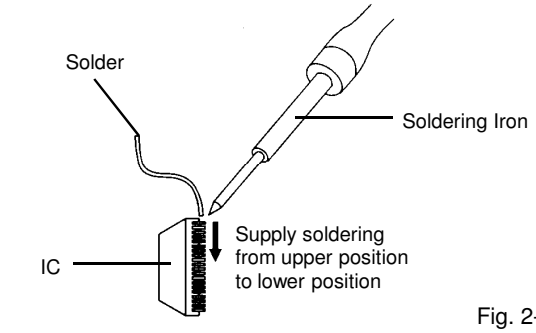


Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 2-7.)**

NOTE

Do not absorb the solder to excess.

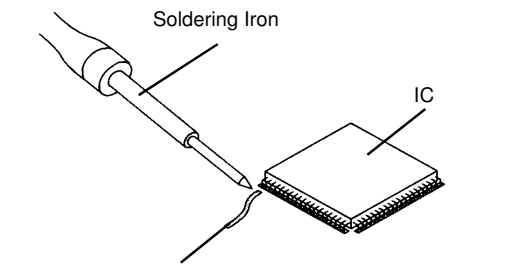


Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thintip Soldering Iron. **(Refer to Fig. 2-8.)**

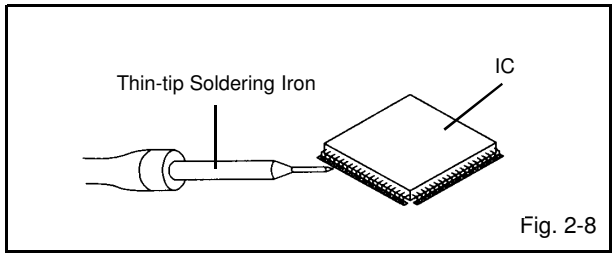


Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.

CAUTION

Do not feel after other MENU.

1. Check of the SUM DATA and MICON VERSION on the screen.

   1-1: Press the MENU ---> 1147 button on the remote control to select "Setup".
   1-2: Press the DOWN button on the remote control to select "Version Info".
   1-3: On the screen as shown in **Fig. 1-1**.

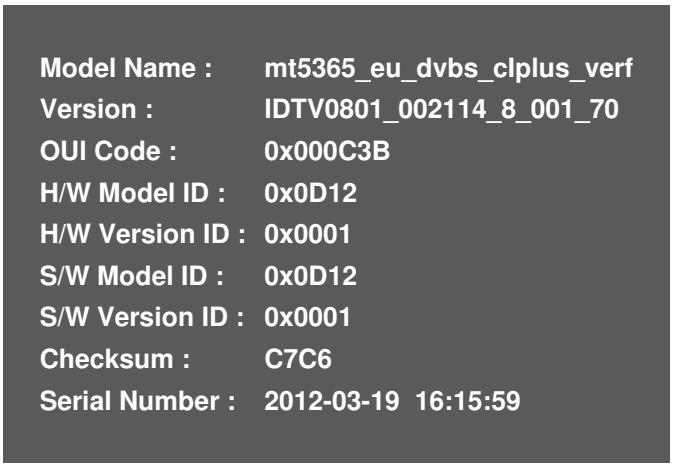

Model Name : mt5365_eu_dvbs_clplus_verf
Version : IDTV0801_002114_8_001_70
OUI Code : 0x000C3B
H/W Model ID : 0x0D12
H/W Version ID : 0x0001
S/W Model ID : 0x0D12
S/W Version ID : 0x0001
Checksum : C7C6
Serial Number : 2012-03-19 16:15:59

Fig. 1-1

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Prepare the following measurement tools for electrical adjustments.

1. Pattern Generator

On-Screen Display Adjustment

1. Press the MENU---> 1147 button on the remote control.
2. Press the DOWN button on the remote control.
3. Select the "Video" menu, then press ENTER button on the remote control.
4. Select the "Color Temperature" menu , then press ENTER button on the remote control.
5. On the screen as shown in **Fig. 1-1.**

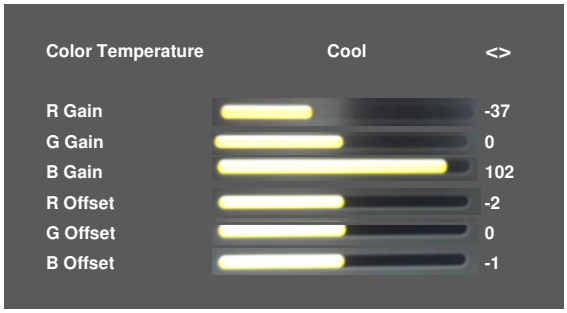


Fig 1-1

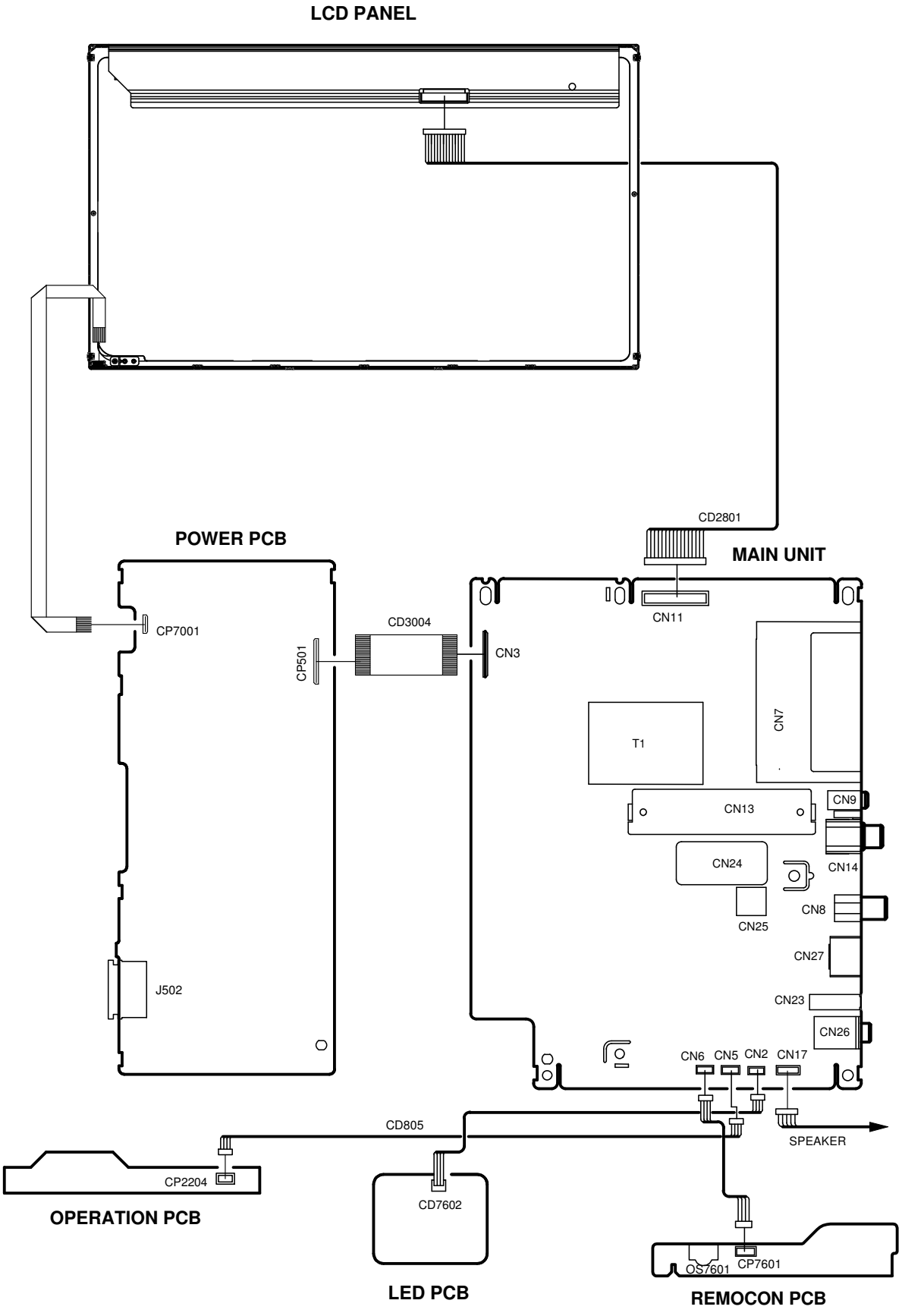
2. BASIC ADJUSTMENTS

2-1: WHITE BALANCE

1. Place the set in Aging Test for more than 15 minutes.
2. Please select input About mode to adjust W/B.
3. Receive the gray scale pattern from the Pattern Generator.
4. Press the INPUT SELECT button on the remote control to set to the AV mode.
5. Using the remote control, set the brightness and contrast to normal position.
6. Press the MENU---> 1147 button on the remote control.
7. Press the DOWN button on the remote control.
8. Select the "Video" menu, then press ENTER button on the remote control.
9. Select the "Color Temperature" menu , then press ENTER button on the remote control.
10. Press the UP/DOWN button on the remote control to select the "R Gain", "G Gain", "B Gain", "R Offset", "G Offset", "B Offset.
11. Adjust the LEFT/RIGHT button on the remote control to whiten the R Gain, G Gain, B Gain, R Offset, G Offset, B Offset at each step tone sections equally..
12. Perform the above adjustments 10 and 11 until the white color is achieved.

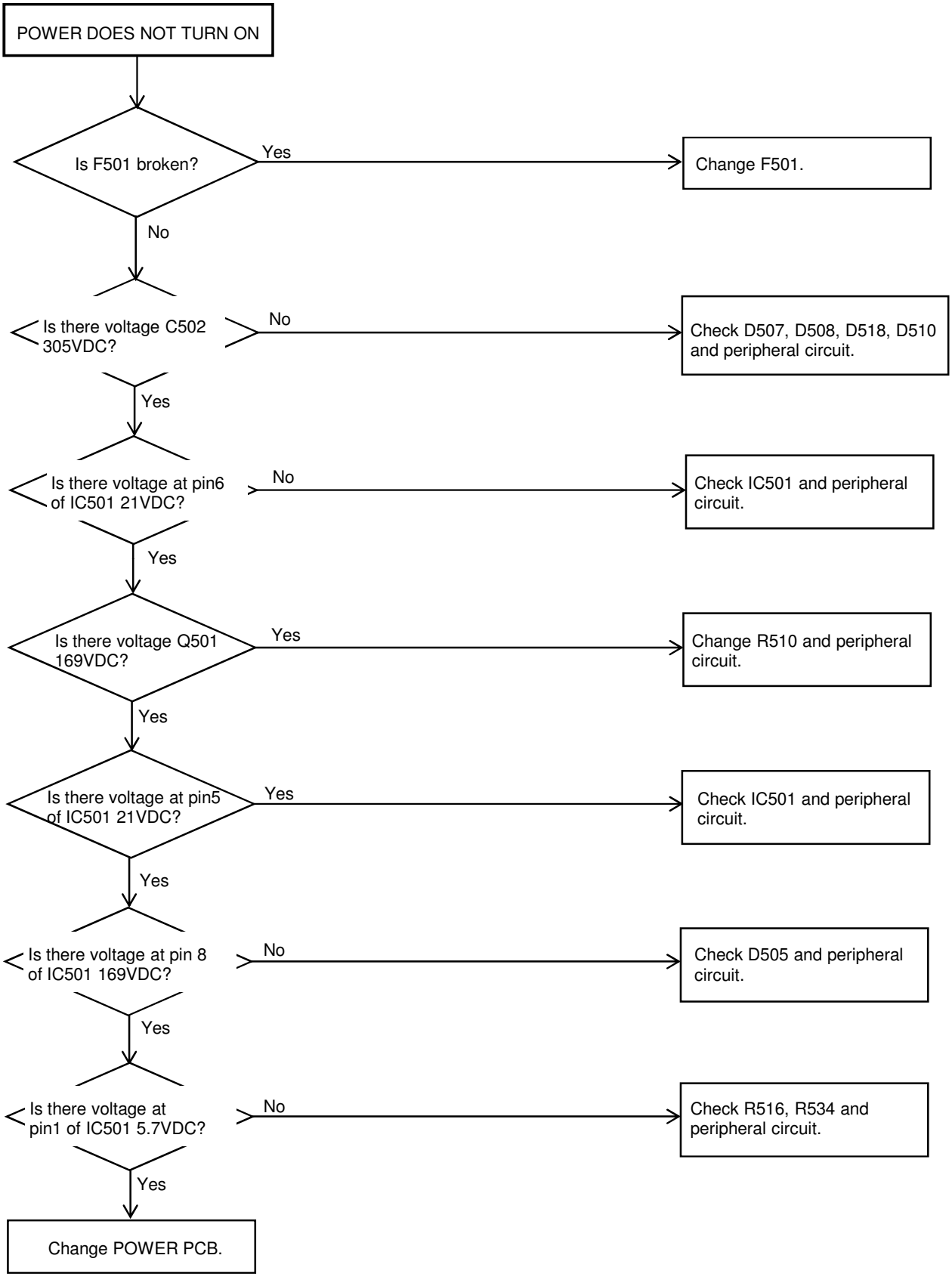
ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

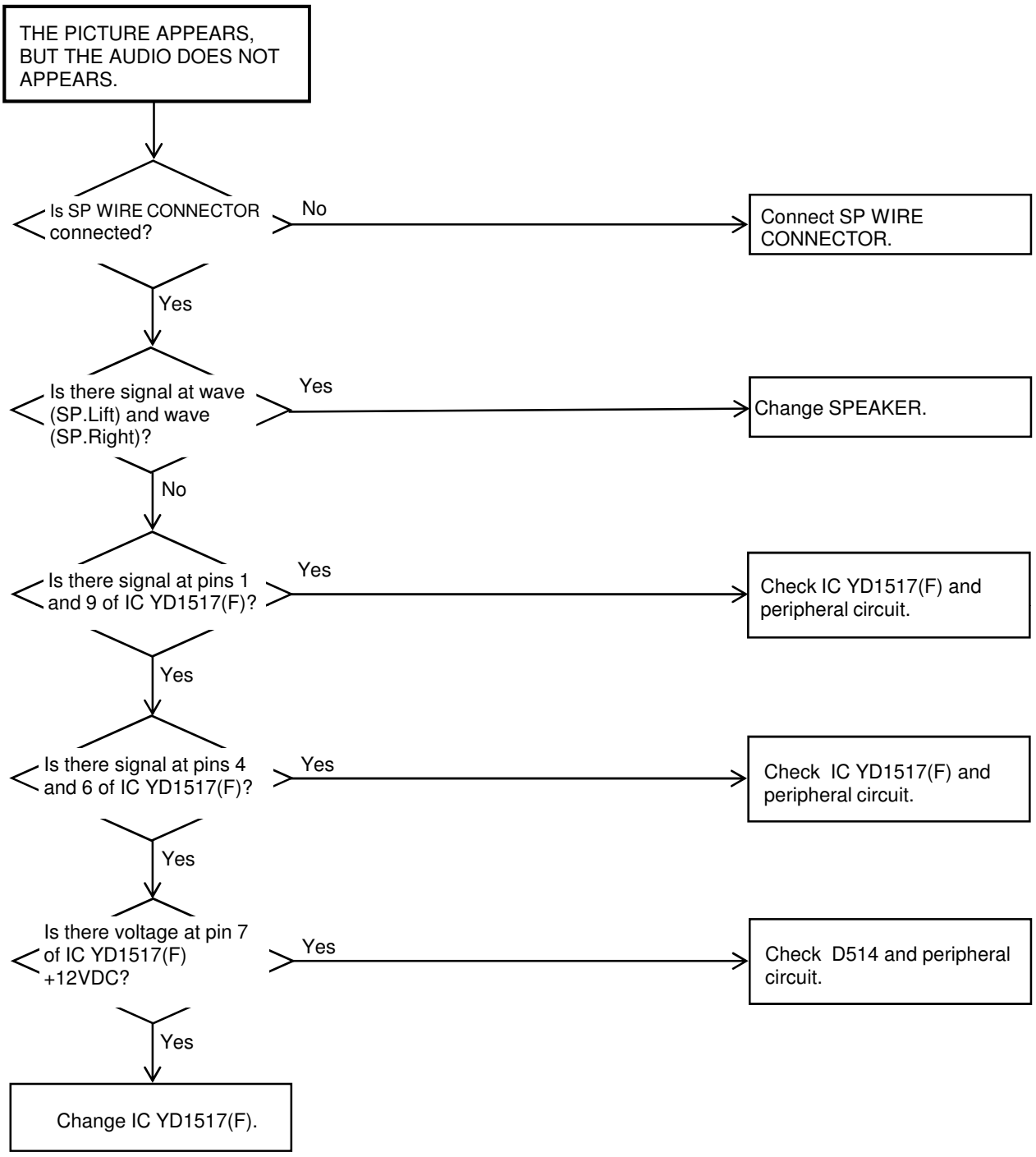


TROUBLESHOOTING GUIDE

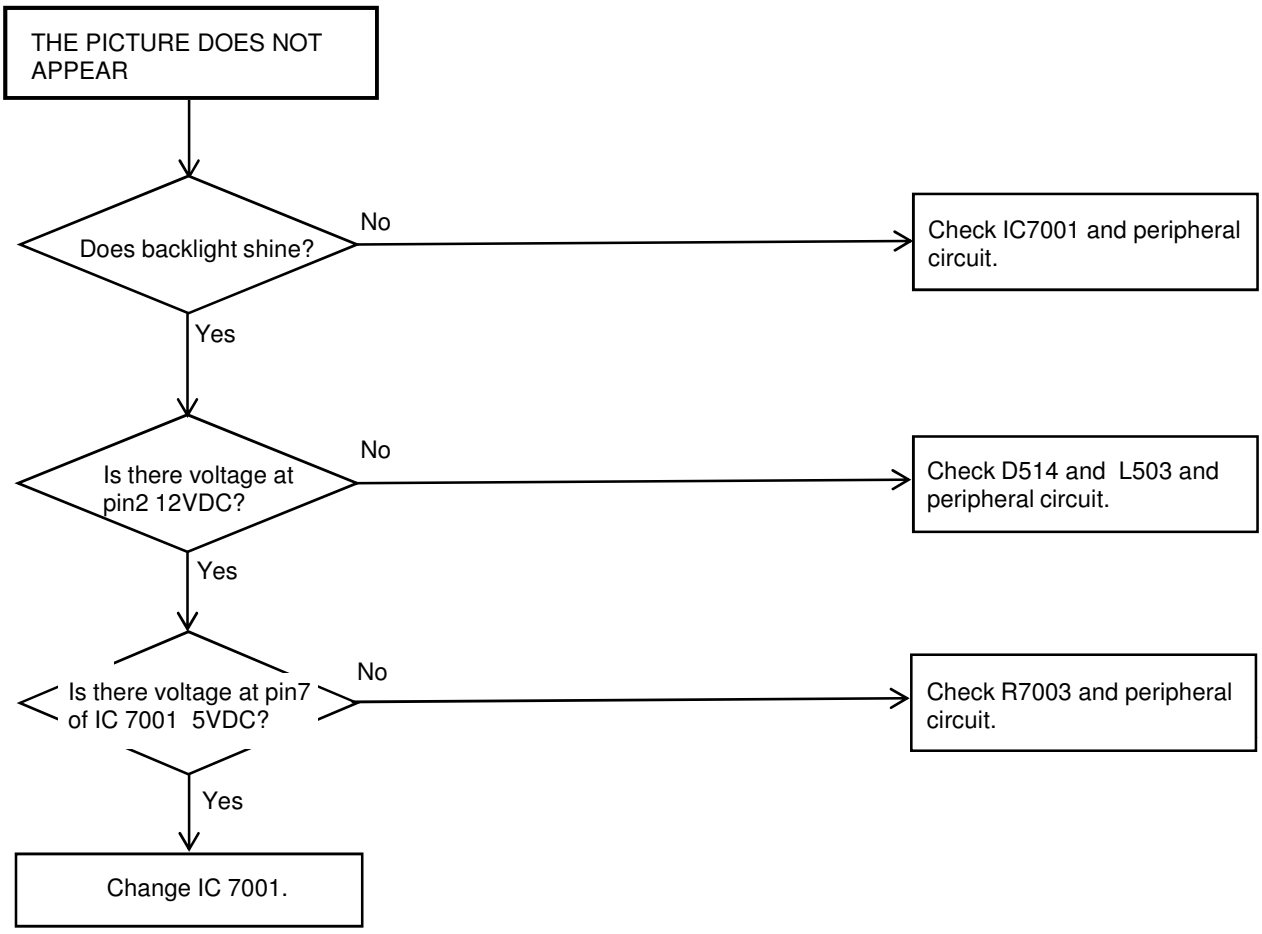
(LCD SECTION)



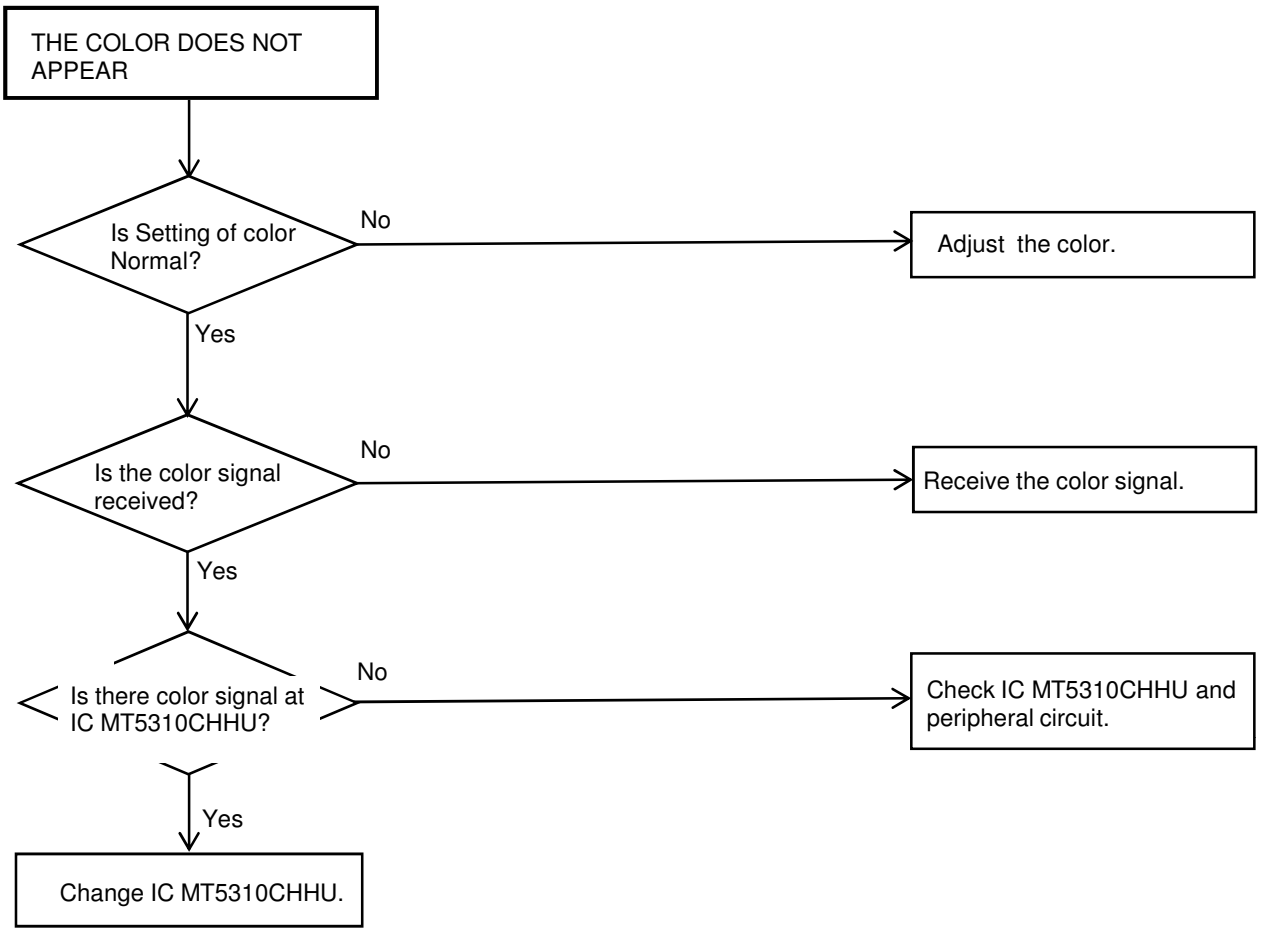
TROUBLESHOOTING GUIDE


THE PICTURE APPEARS, BUT THE AUDIO DOES NOT APPEARS.
Is SP WIRE CONNECTOR connected?
No
Connect SP WIRE CONNECTOR.
Yes
Is there signal at wave (SP.Lift) and wave (SP.Right)?
Yes
Change SPEAKER.
No
Is there signal at pins 1 and 9 of IC YD1517(F)?
Yes
Check IC YD1517(F) and peripheral circuit.
Yes
Is there signal at pins 4 and 6 of IC YD1517(F)?
Yes
Check IC YD1517(F) and peripheral circuit.
Yes
Is there voltage at pin 7 of IC YD1517(F) +12VDC?
Yes
Check D514 and peripheral circuit.
Yes
Change IC YD1517(F).

TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



SEMICONDUCTOR BASE CONNECTIONS

DIODE

1N4006-A5
1SS133T-77
FCF10A20
SARS01

1F5
FCHS10A08
HZS12NB2
ZRM11C

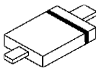
HZS33NB2

RB056L-40TE25

S14K385E2S5M4

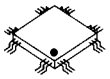
BA36-PUR1DCB549T1/470

UDZSNP11B TE-17



MA111-(TX)

IC

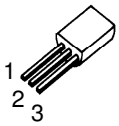


ATTINY48-MU

NR887D

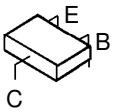
TRANSISTOR

FA5640N-D1-TE1

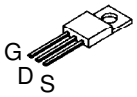


KIA431A-AT

PS2561AL1-1-V(W)

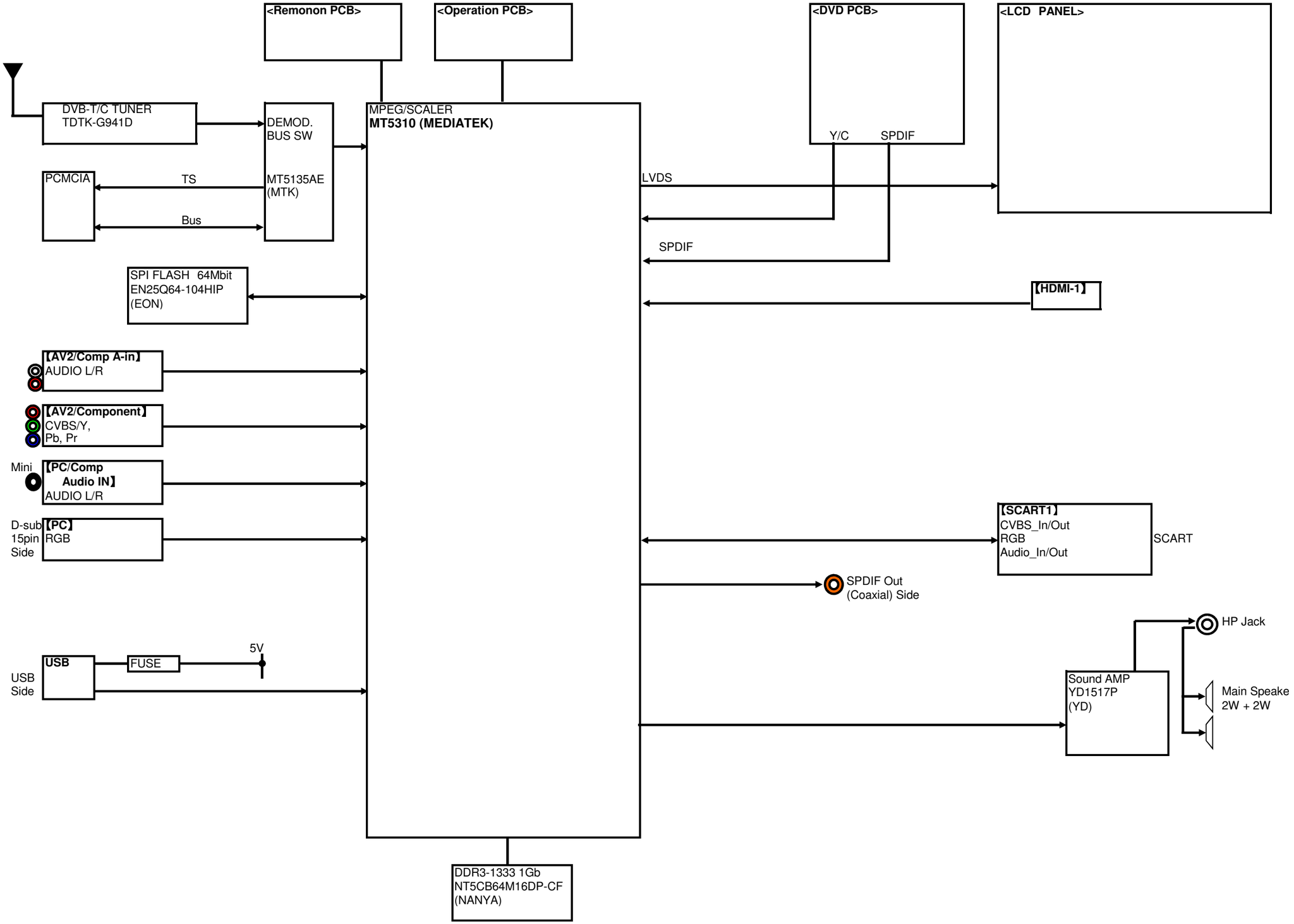


KRC103SRTK
KTA1504S_Y_RTK



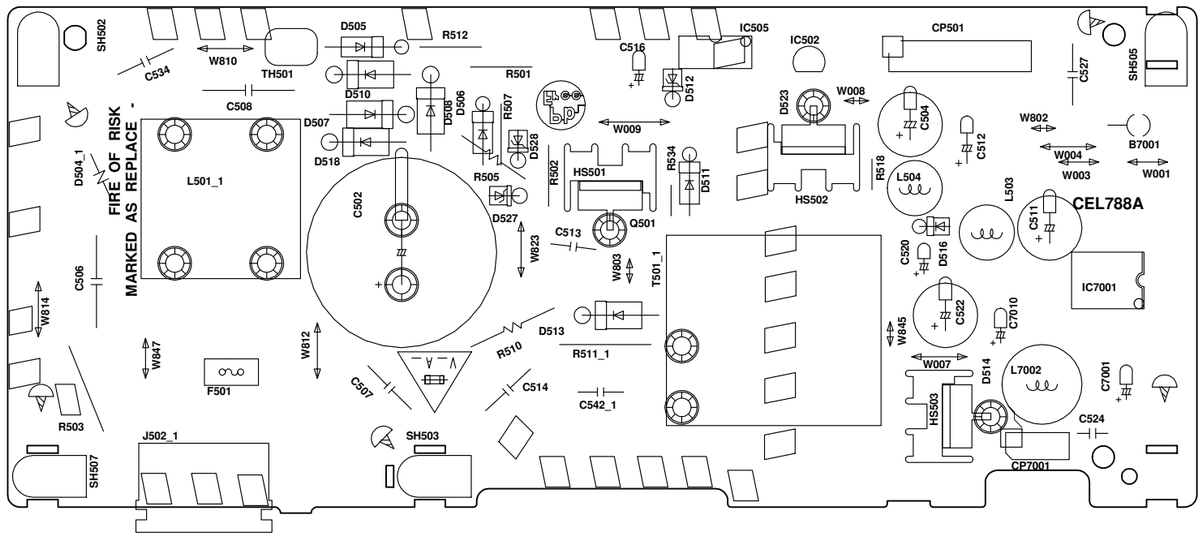
FMV09N90E

BLOCK DIAGRAM

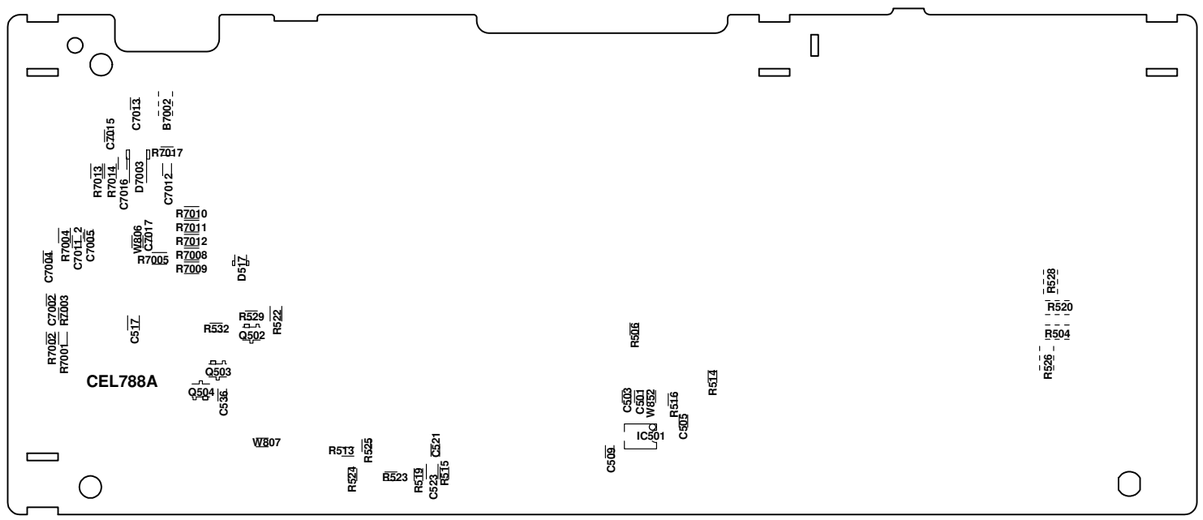


PRINTED CIRCUIT BOARDS

POWER (INSERTED PARTS)
SOLDER SIDE

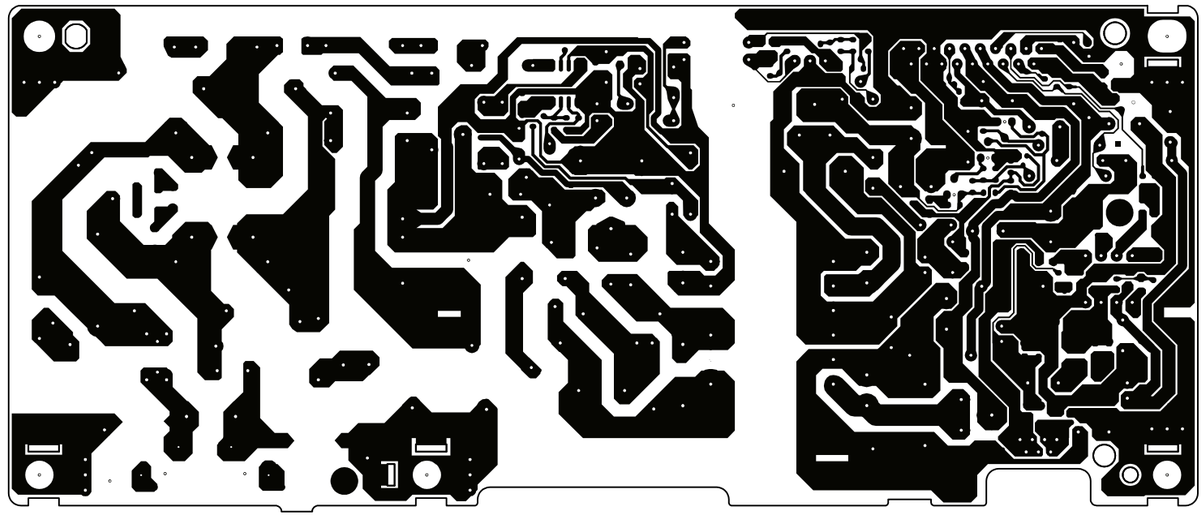


POWER (CHIP MOUNTED PARTS)
SOLDER SIDE

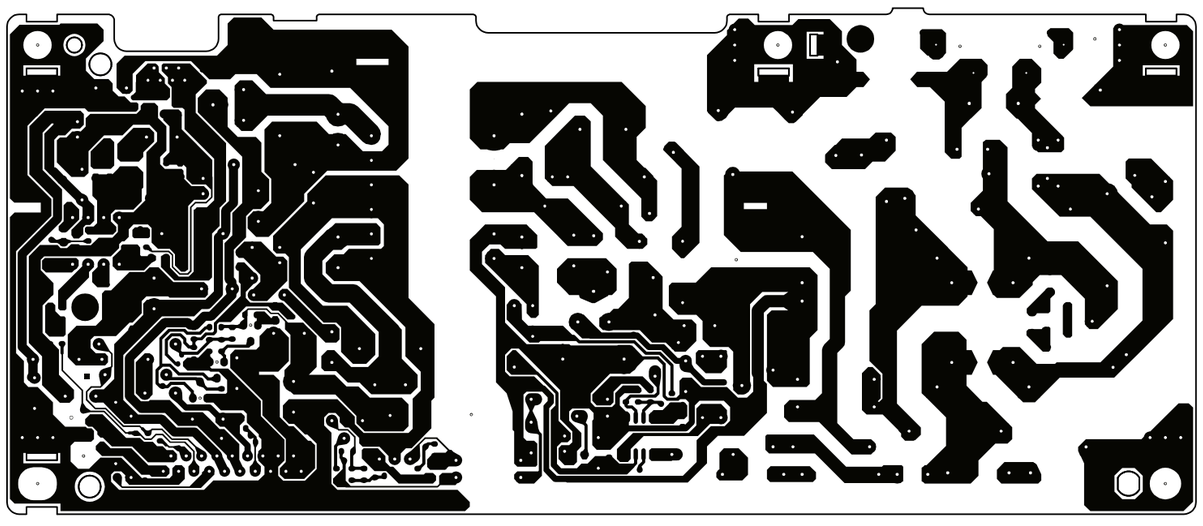


PRINTED CIRCUIT BOARDS

POWER (INSERTED PARTS)
SOLDER SIDE

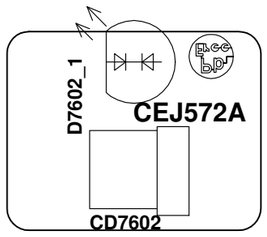


POWER (CHIP MOUNTED PARTS)
SOLDER SIDE

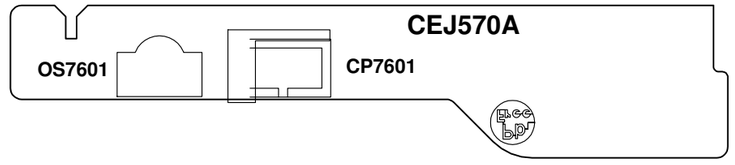


PRINTED CIRCUIT BOARDS

LED (INSERTED PARTS)
SOLDER SIDE

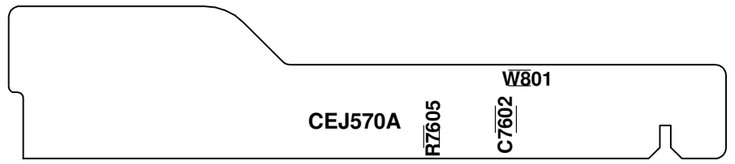


REMOCON (INSERTED PARTS)
SOLDER SIDE

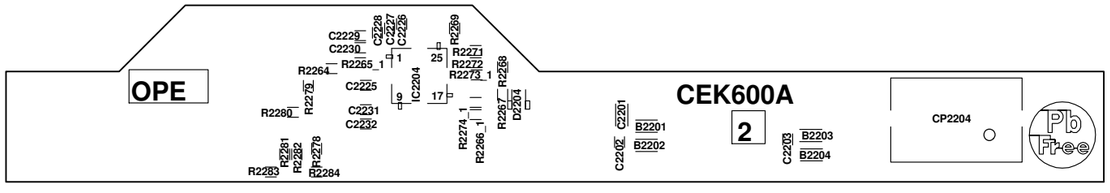


LED (CHIP MOUNTED PARTS)
SOLDER SIDE

REMOCON (CHIP MOUNTED PARTS)
SOLDER SIDE

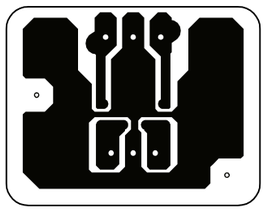


OPERATION (TOP SIDE)

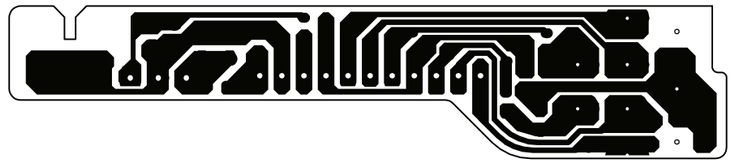


PRINTED CIRCUIT BOARDS

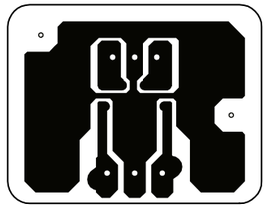
LED (INSERTED PARTS)
SOLDER SIDE



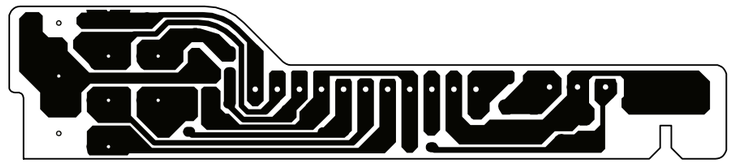
REMOCON (INSERTED PARTS)
SOLDER SIDE



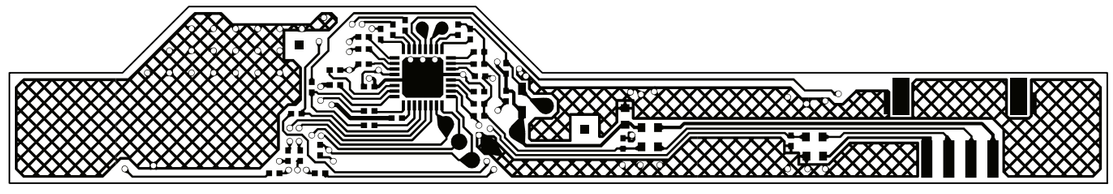
LED (CHIP MOUNTED PARTS)
SOLDER SIDE



REMOCON (CHIP MOUNTED PARTS)
SOLDER SIDE

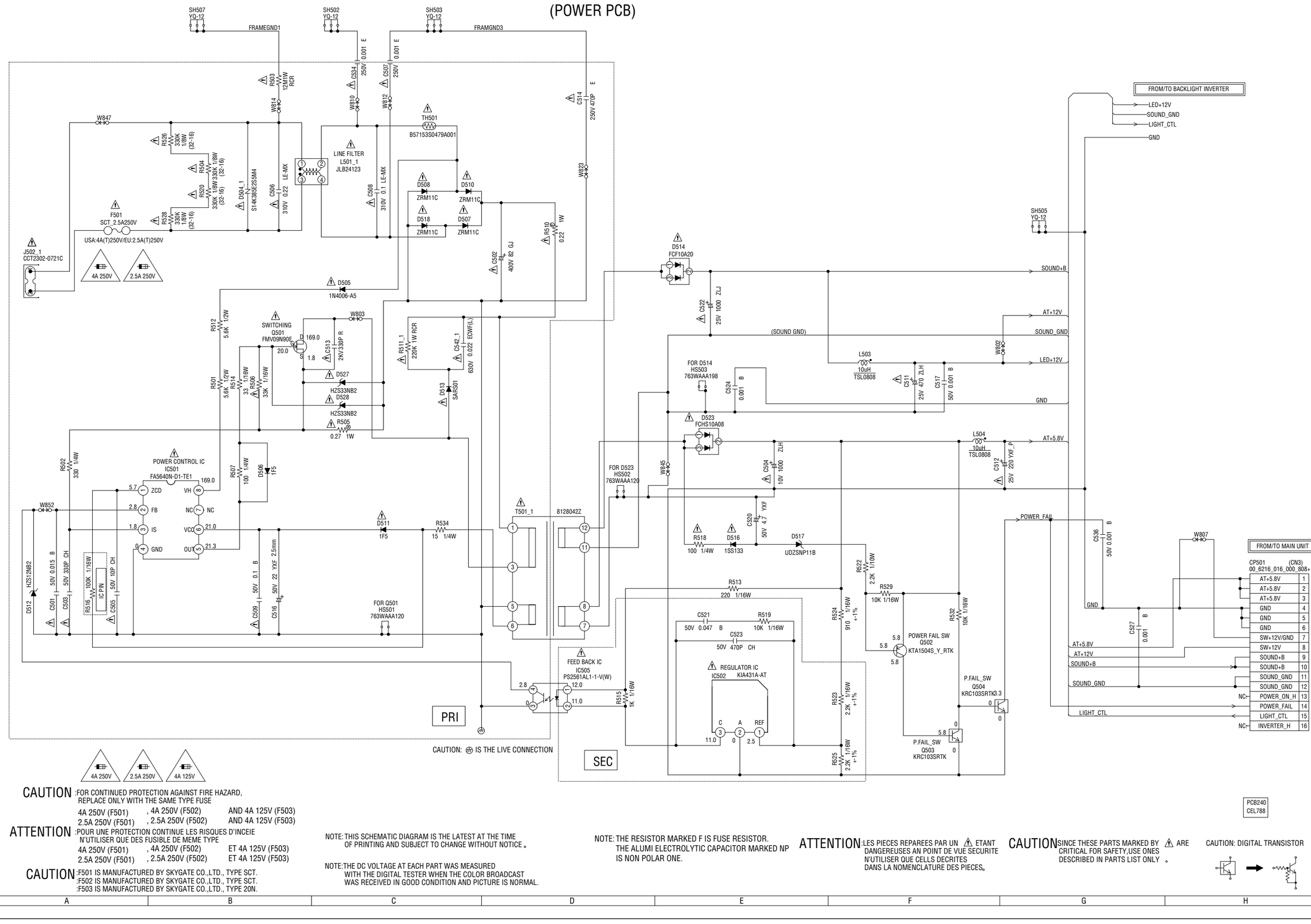


OPERATION (TOP SIDE)



POWER SCHEMATIC DIAGRAM

(POWER PCB)



4A 250V 2.5A 250V 4A 125V

CAUTION :FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE

4A 250V (F501) , 4A 250V (F502) AND 4A 125V (F503)
2.5A 250V (F501) , 2.5A 250V (F502) AND 4A 125V (F503)

ATTENTION :POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE
N'UTILISER QUE DES FUSIBLE DE MEME TYPE

4A 250V (F501) , 4A 250V (F502) ET 4A 125V (F503)
2.5A 250V (F501) , 2.5A 250V (F502) ET 4A 125V (F503)

CAUTION :F501 IS MANUFACTURED BY SKYGATE CO.,LTD., TYPE SCT.
:F502 IS MANUFACTURED BY SKYGATE CO.,LTD., TYPE SCT.
:F503 IS MANUFACTURED BY SKYGATE CO.,LTD., TYPE 20N.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

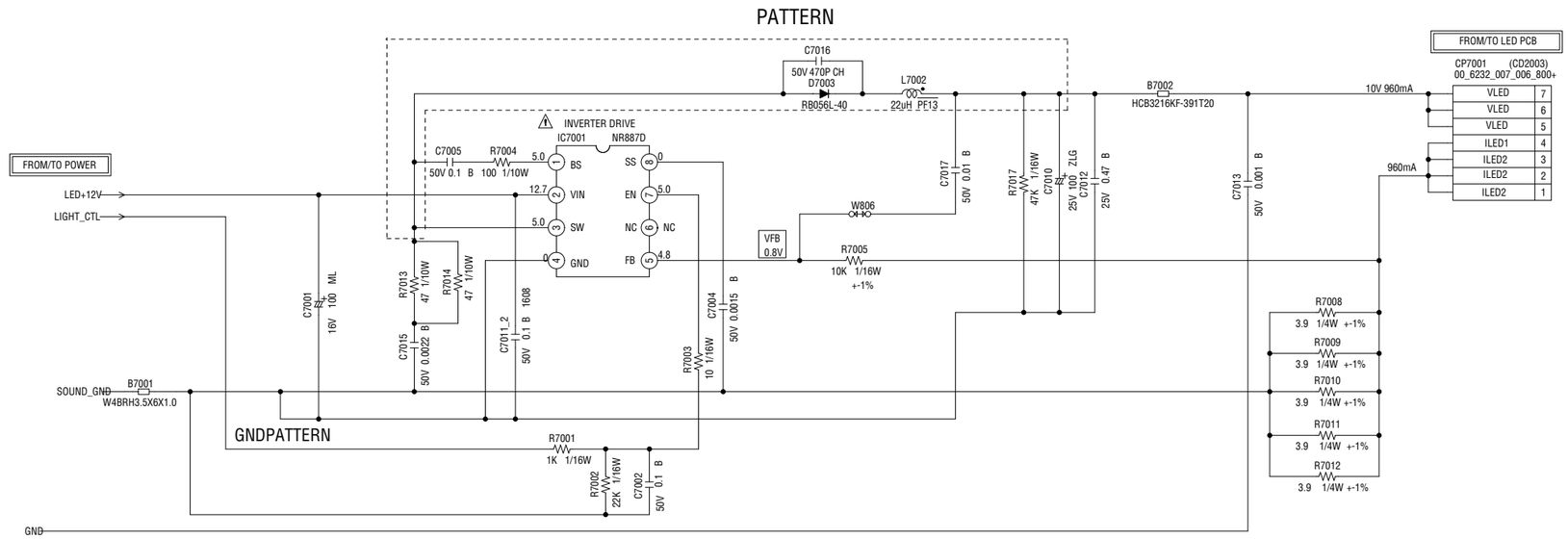
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR

BACKLIGHT INVERTER SCHEMATIC DIAGRAM

(POWER PCB)



PCB240
CEL788

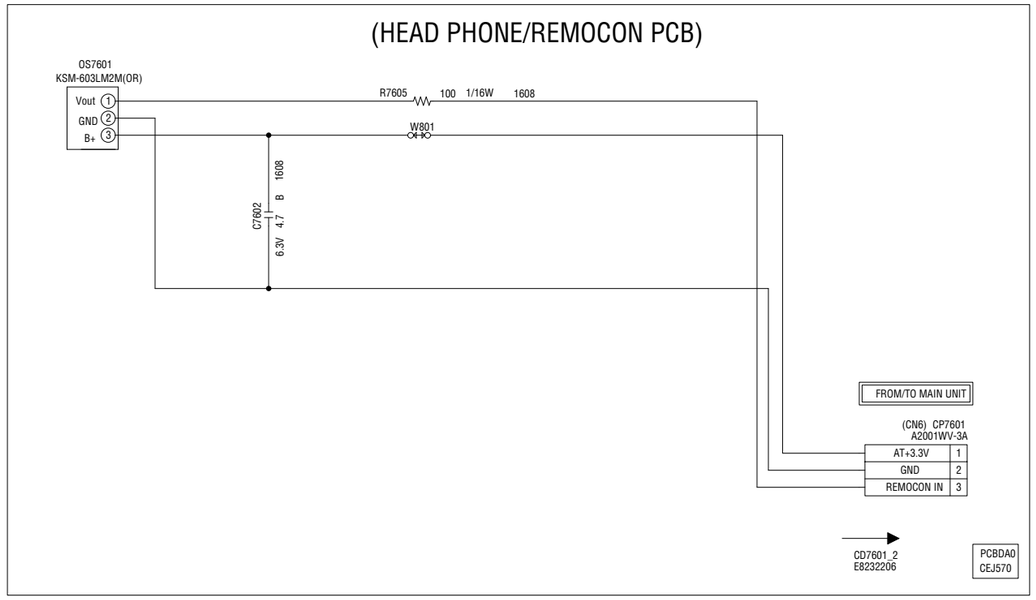
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

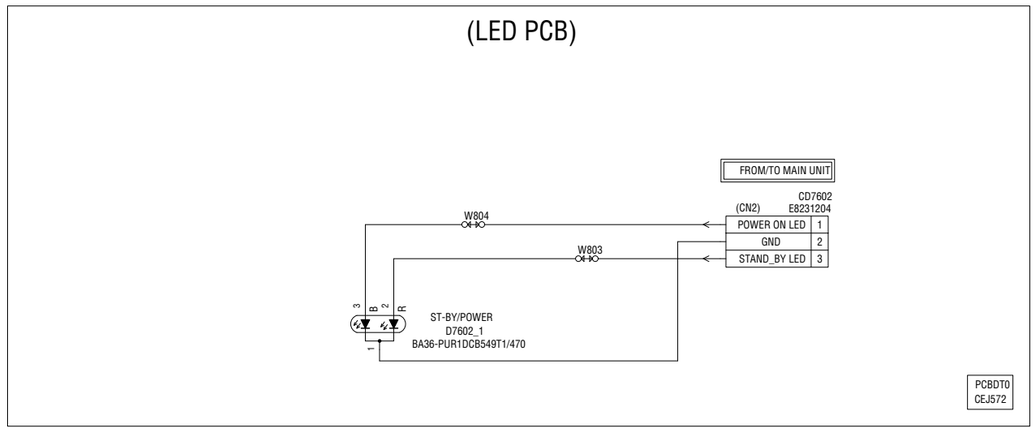
HEAD PHONE/REMOCON/LED SCHEMATIC DIAGRAM

(REMOCON/LED PCB)

(HEAD PHONE/REMOCON PCB)



(LED PCB)

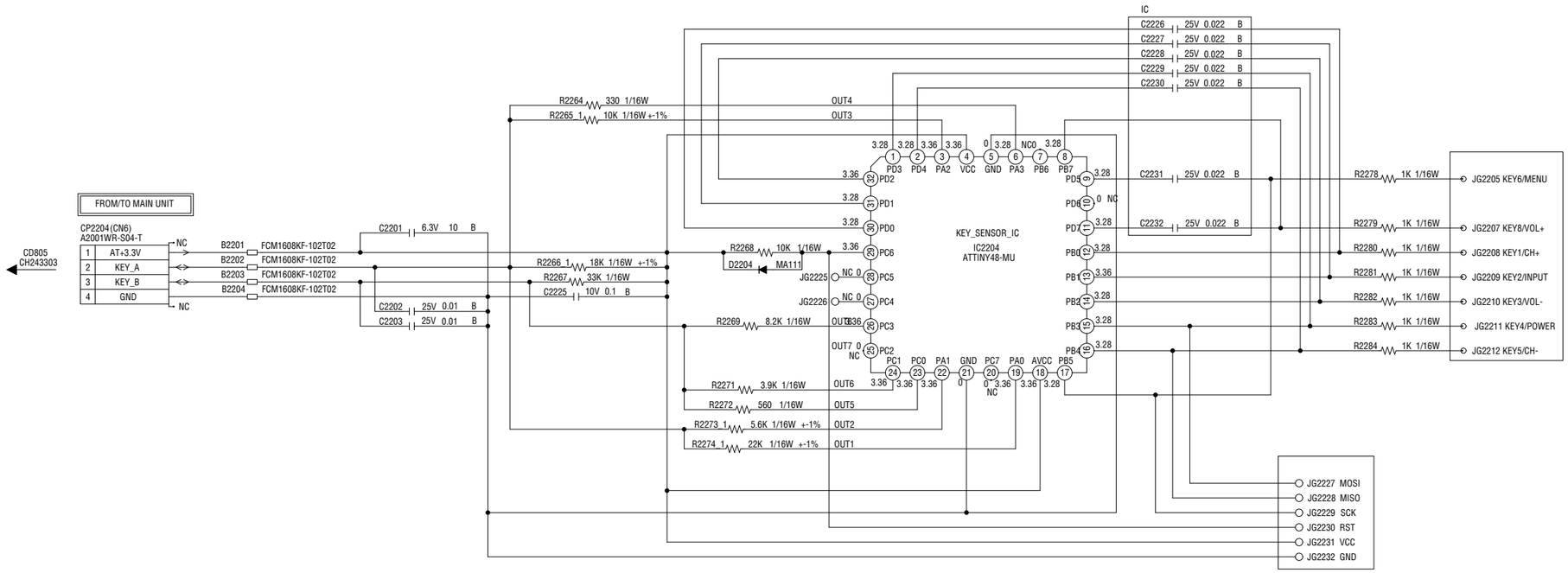


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)

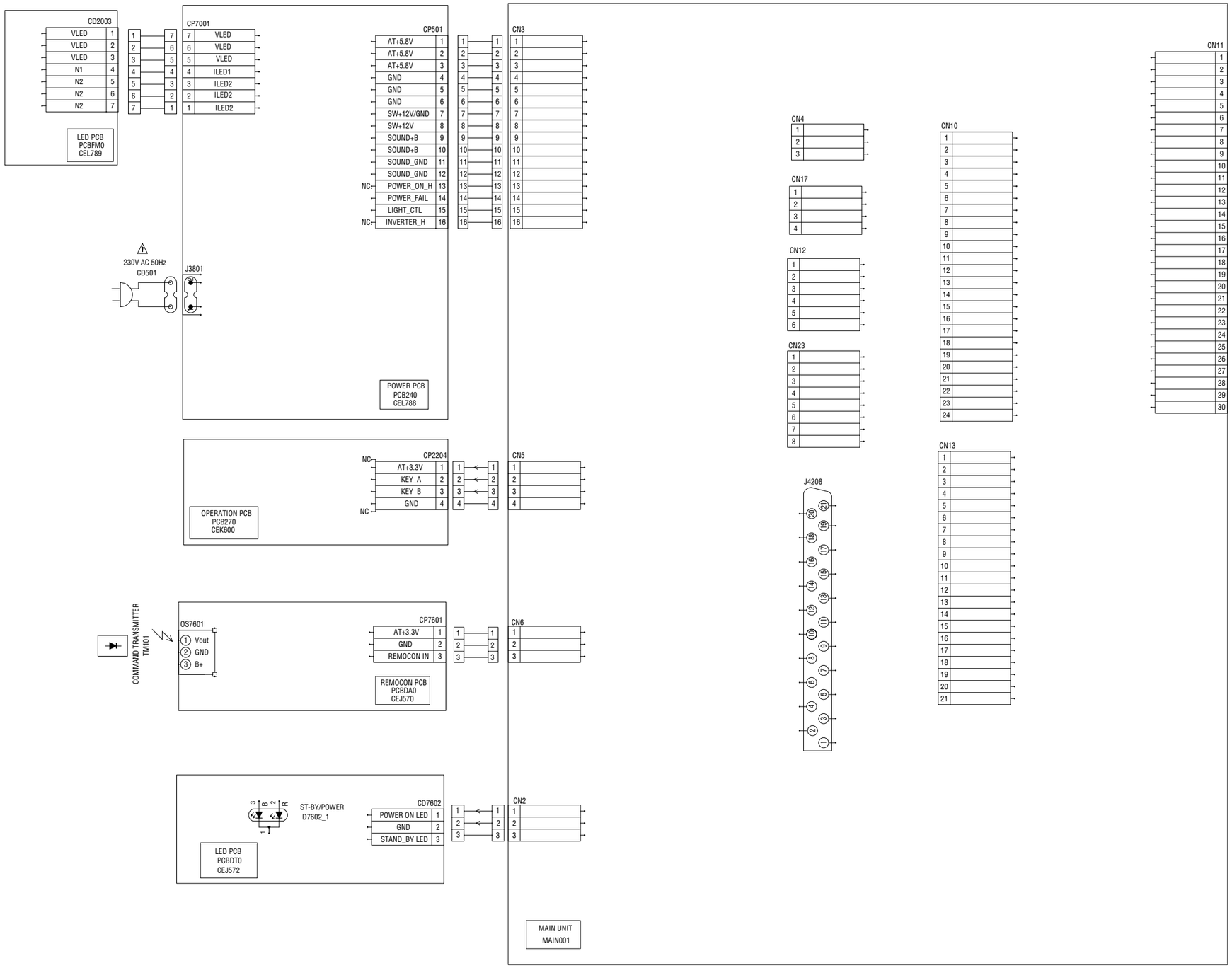


PCB270
CEK600

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

INTERCONNECTION DIAGRAM



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

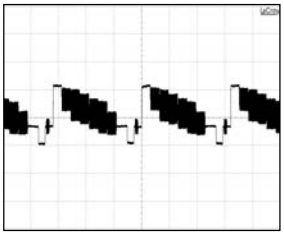
ATTENTION:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

WAVEFORMS

SCALER VIDEO/AUDIO

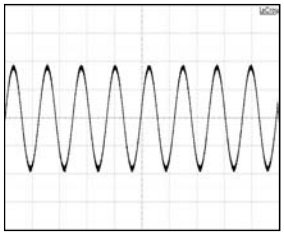
20µs/div
500mV/div

AV IN



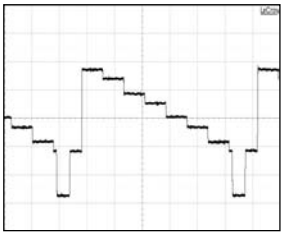
2ms/div
200mV/div

PC AUDIO L



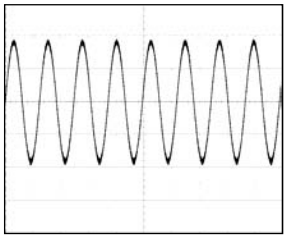
10µs/div
200mV/div

PY



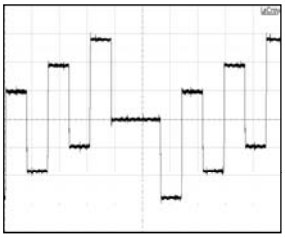
2ms/div
200mV/div

PC AUDIO R



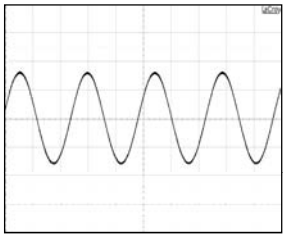
10µs/div
100mV/div

PR



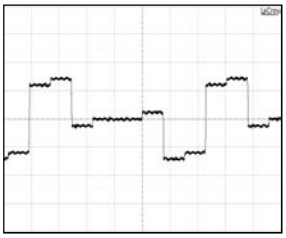
1ms/div
500mV/div

AUDIO OUT L



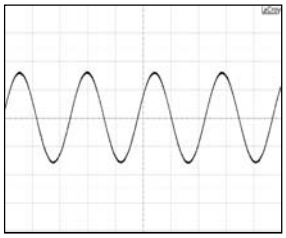
10µs/div
200mV/div

PB



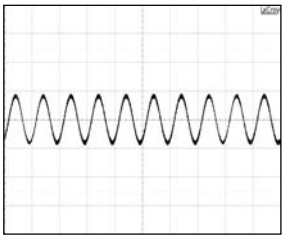
1ms/div
500mV/div

AUDIO OUT R



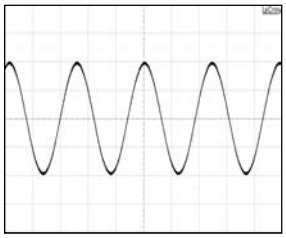
1ms/div
200mV/div

AU AUDIO IN L



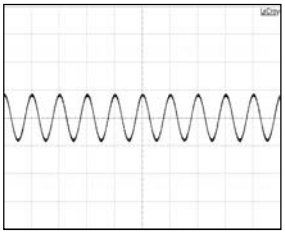
1ms/div
2V/div

SPEAKER L



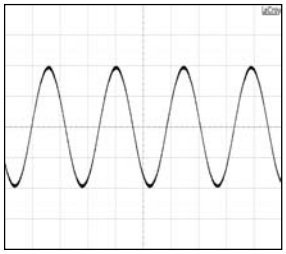
1ms/div
200mV/div

AU AUDIO IN R



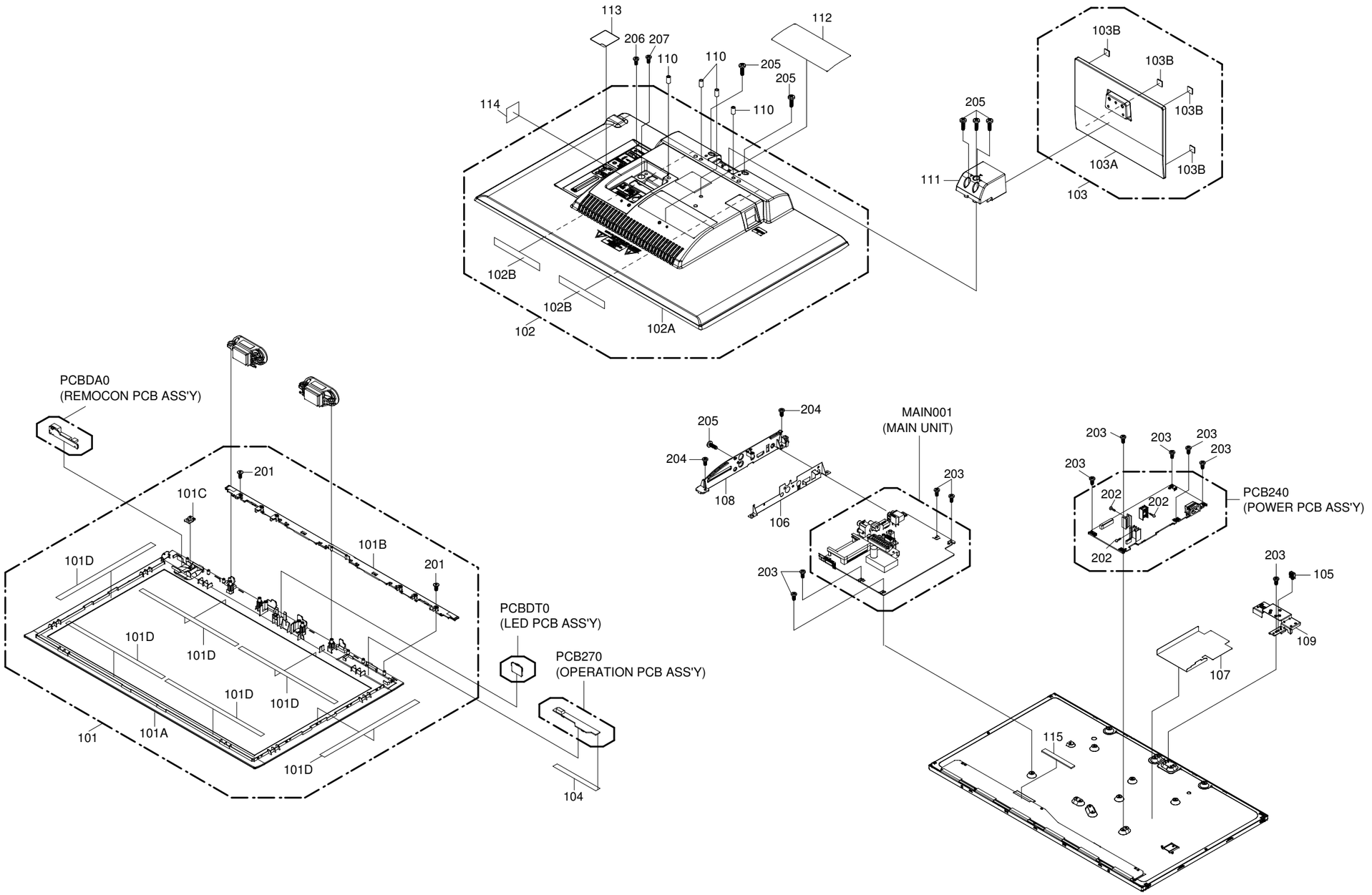
1ms/div
2V/div

SPEAKER R

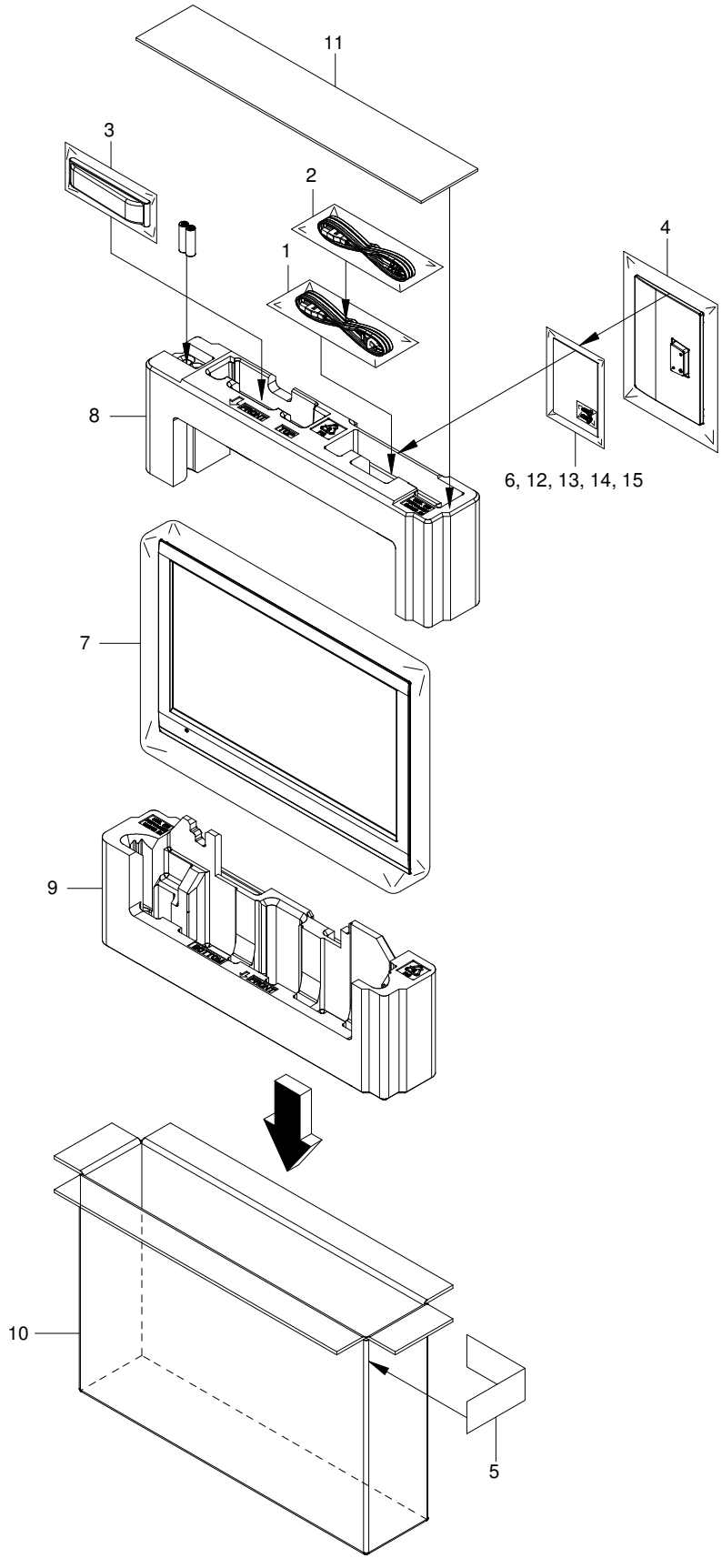


NOTE : Main Board Signal Input/Output.

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW
(PACKING DIAGRAM)



MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		QUANTITY
101	X-7A708A911A	FRONT CABI ASS'Y		1
101A	X-708WPDA718	CABINET FRONT		1
101B	X-711WPAA316	FRONT PLATE		1
101C	X-713WPD0028	GUIDE REMOCON		1
101D	X-800WQ00181	FELT SHEET		6
102A	X-702WPAC014	CABINET BACK		1
102B	X-800WQ0A312	FELT SHEET		2
103	X-7A704A375A	STAND ASS'Y		1
103A	X-704WPA0161	STAND		1
103B	X-800SRA0002	CUSHION LEG	VEB1349-A	4
104	X-7290000210	DOUBLE FACE TAPE		1
105	X-709WPA0051	HOLDER WIRE		1
106	X-752WUAA016	SHIELD JACK		1
107	X-759WNAA043	SHEET PC		1
108	X-761WPAA430	PLATE JACK		1
109	X-761WSAA217	ANGLE HINGE		1
110	X-769WSA0022	VESA SHAFT		4
111	X-704WPA0162	STAND FRAME		1
112	X-722538A287	SHEET RATING		1
113	X-723000F825	SHEET JACK 1		1
114	X-723000F826	SHEET JACK 2		1
115	X-800WQ0A266	FELT SHEET		1
201	X-8110K2660U	SCREW TAP TITE(P) LAMI HEAD	2.6x6	2
202	X-8109I30A0U	SCREW TAP TITE(B) WH7	3x10	3
203	X-810722660U	SCREW TAP TITE(S) BIND	2.6x6	10
204	X-810722680U	SCREW,TAP TITE(S) BIND	M2.6x8	2
205	X-8109230A0S	SCREW TAP TITE(B) BIND	3x10	6
206	X-8107K2660S	SCREW TAP TITE(S) LAMI HEAD	2.6x6	1
207	X-810722680S	SCREW TAP TITE(S) BIND	M2.6x8	1

ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		QUANTITY
1	X-120A155811	CORD SET AC	O27-007BK	1
2	X-06EYB18003	CORD,RCA PIN	06.03.02.0176	1
3	X-076R0TR021	TRANSMITTER	R56-2294	1
4	X-791WHA0173	FILM BAG		1
5	X-723000F778	SHEET CARTON		1
6	X-723000F779	ENERGY LABEL		1
7	X-791WHAA322	FILM BAG		1
8	X-792PHAA067	PACKAGE TOP		1
9	X-792PHAA068	PACKAGE BOTTOM		1
10	X-793PCDA452	GIFT BOX		1
11	X-795PCA0001	SHEET PROTECTION		1
12	X-8905000013	SCREW		1
13	X-JB5PD000	POLYBAG INSTRUCTION(RED CAUTION)		1
14	X-J3LJ0307A	QUICK SET UP SHEET		1
15	X-J3LJ0351A	INSTRUCTION BOOK(EN/CZ/SK/HU/PL)		1

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		QUANTITY
		REMOCON PCB ASS'Y		
		*** PCB ***		
PCBDA0	X-A3LJ03WDA0P	REMOCON PCB ASS'Y	CEJ570A	1
		*** RESISTORS ***		
R7605	X-R803R9101J	RC 100 OHM 1/16W	HPWGJ101T50	1
		*** CAPACITORS ***		
C7602	X-CS0PB0PQ6K	CC 4.7 UF 6.3V B	GRM188B30J475KE18D	1
		*** OTHERS ***		
CP7601	X-06GG230029	CONNECTOR PCB SIDE	A2001WV-3A	1
OS7601	X-077Q038012	REMOTE RECEIVER	KSM-603LM2M(OR)	1
		LED PCB ASS'Y		
		*** PCB ***		
PCBDT0	X-A3LJ03WDT0P	LED PCB ASS'Y	CEJ572A	1
		*** DIODES ***		
D7602	X-0021991050	LED	BA36-PUR1DCB549T1/470	1
		*** OTHERS ***		
CD7602	X-06E8231204	CORD CONNECTOR	E8231204	1
		*** OTHERS ***		
⚠V7201	X-A3LJ03WFM0P	LED MODULE ASS'Y	M215HGE-P02-LED OR7A	1
		POWER PCB ASS'Y		
		*** PCB ***		
PCB240	X-A3LJ03W240P	POWER PCB ASS'Y	CEL788A	1
		*** RESISTORS ***		
R501	X-R002T2562J	RC 5.6K OHM 1/2W	CR1/2W-SS562JT/B	1
R502	X-R002T4331J	RC 330 OHM 1/4W	BCS4J0331A10	1
⚠R503	X-RC31X1126J	RC 12M OHM 1W	RCR60CT52A126J	1
⚠R504	X-R8X2R8334J	RC 330K OHM 1/8W	1206W8J0334T5E	1
⚠R505	X-R3K781R27J	R,METAL OXIDE 0.27 OHM 1W	ERX1FJR27H	1
⚠R506	X-R803R9333J	RC 33K OHM 1/16W	HPWG J 333 T50	1
R507	X-R002T4101J	RC 100 OHM 1/4W	BCS4J0101A10	1
⚠R510	X-R63881R22J	R,FUSE 0.22 OHM 1W	RF1CL15AR22J	1
⚠R511	X-RC31X1224J	RC 220K OHM 1W	RCR60CT52A224J	1
R512	X-R002T2562J	RC 5.6K OHM 1/2W	CR1/2W-SS562JT/B	1
R513	X-R803R9221J	RC 220 OHM 1/16W	HPWGJ221T50	1
R514	X-R803R9330J	RC 33 OHM 1/16W	HPWG J 330 T50	1
R515	X-R803R9102J	RC 1K OHM 1/16W	HPWGJ102T50	1
R516	X-R803R9104J	RC 100K OHM 1/16W	HPWGJ104T50	1
⚠R518	X-R002T4101J	RC 100 OHM 1/4W	BCS4J0101A10	1

ELECTRICAL REPLACEMENT PARTS LIST

R519	X-R803R9103J	RC	10K OHM 1/16W	HPWGJ103T50	1
⚠R520	X-R8X2R8334J	RC	330K OHM 1/8W	1206W8J0334T5E	1
R522	X-R801R7222J	RC	2.2K OHM 1/10W	HMWAJ0222T50	1
R523	X-R803R9222F	RC	2.2K OHM 1/16W	HPWGF222T50	1
R524	X-R803R9911F	RC	910 OHM 1/16W	HPWGF911T50	1
R525	X-R803R9222F	RC	2.2K OHM 1/16W	HPWGF222T50	1
⚠R526	X-R8X2R8334J	RC	330K OHM 1/8W	1206W8J0334T5E	1
⚠R528	X-R8X2R8334J	RC	330K OHM 1/8W	1206W8J0334T5E	1
R529	X-R803R9103J	RC	10K OHM 1/16W	HPWGJ103T50	1
R532	X-R803R9103J	RC	10K OHM 1/16W	HPWGJ103T50	1
R534	X-R002T4150J	RC	15 OHM 1/4W	BCS4J0150A10	1
R7001	X-R803R9102J	RC	1K OHM 1/16W	HPWGJ102T50	1
R7002	X-R803R9223J	RC	22K OHM 1/16W	HPWG J 223 T50	1
R7003	X-R803R9100J	RC	10 OHM 1/16W	HPWGJ100T50	1
R7004	X-R801R7101J	RC	100 OHM 1/10W	HMWAJ0101T50	1
R7005	X-R803R9103F	RC	10K OHM 1/16W	HPWGF103T50	1
R7008	X-R861R43R9F	RC	3.9 OHM 1/4W	MCR10EZHFL3R9	1
R7009	X-R861R43R9F	RC	3.9 OHM 1/4W	MCR10EZHFL3R9	1
R7010	X-R861R43R9F	R	3.9 OHM 1/4W	MCR10EZHFL3R9	1
R7011	X-R861R43R9F	R	3.9 OHM 1/4W	MCR10EZHFL3R9	1
R7012	X-R861R43R9F	RC	3.9 OHM 1/4W	MCR10EZHFL3R9	1
R7013	X-R801R7470J	RC	47 OHM 1/10W	HMWAJ0470T50	1
R7014	X-R801R7470J	RC	47 OHM 1/10W	HMWAJ0470T50	1
R7017	X-R803R9473J	RC	47K OHM 1/16W	HPWG J 473 T50	1

*** CAPACITORS ***

⚠C501	X-CS0PB04E4K	CC	0.015 UF 50V B	C0603X7R153K500NT	1
⚠C502	X-E83FHH820D	CE	82 UF 400V	LGJ2G820MELB	1
⚠C503	X-CS0PCH4L2J	CC	330 PF 50V CH	C0603C0G331J500NT	1
⚠C504	X-E8E101102M	CE	1000 UF 10V	10ZLH1000MEFC10*12.5	1
⚠C505	X-CS0PCH411D	CC	10 PF 50V CH	GRM1882C1H100JA01D	1
⚠C506	X-P4K12D224K	CMPP	0.22 UF 310V	LE224-MX-C3.5	1
⚠C507	X-CE39E0M13M	CC	0.001 UF 250V E	DE1E3KX102MB4BL01	1
⚠C508	X-P4K12D104K	CMPP	0.1 UF 310V	LE104-MX-C3.5	1
⚠C509	X-CS0PB0415K	CC	0.1 UF 50V B	C0603X7R104K500NT	1
⚠C511	X-E8E1T3471M	CE	470 UF 25V	25ZLH470MEFCT8 10*12.5	1
⚠C512	X-E8E2T3221D	CE	220 UF 25V	25YXF220MEFCTA 8*11.5	1
C513	X-C03L0R7L2K	CC	330 PF 2KV R	DEHR33D331KB3B	1
⚠C514	X-CE39E0MQ2K	CC	470 PF 250V E	DE1B3KX471KB4BL01	1
C516	X-E8E2U5220D	CE	22 UF 50V	50YXF22MEFCT1 5*11	1
C517	X-CS0PB0413K	CC	0.001 UF 50V B	C0603X7R102K500NT	1
C520	X-E8E2U54R7D	CE	4.7 UF 50V	50YXF4.7MEFCT1 5*11	1
C521	X-CS0PB04Q4K	CC	0.047 UF 50V B	GRM188B11H473KA01D	1
⚠C522	X-E9E8F3102D	CE	1000 UF 25V	25VZLJ1000MKC10*20	1
C523	X-CS0PCH4Q2J	CC	470 PF 50V CH	C0603CG471J500NT	1
C524	X-CRGTB0413K	CC	0.001 UF 50V B	UP025B102K-A-BZ	1
C527	X-CRGTB0413K	CC	0.001 UF 50V B	UP025B102K-A-BZ	1
⚠C534	X-CE39E0M13M	CC	0.001 UF 250V E	DE1E3KX102MB4BL01	1
C536	X-CS0PB0413K	CC	0.001 UF 50V B	C0603X7R102K500NT	1
⚠C542	X-P416F5223J	CMPP	0.022 UF 630V ECWF(L)	ECWF6223JLB	1
C7001	X-E9EGU2101M	CE	100 UF 16V	16ML101MEFCT5 6.3*7	1
C7002	X-CS0PB0415K	CC	0.1 UF 50V B	C0603X7R104K500NT	1
C7004	X-CS0PB04E3K	CC	0.0015UF 50V B	C0603X7R152K500NT	1
C7005	X-CS0PB0415K	CC	0.1 UF 50V B	C0603X7R104K500NT	1
C7010	X-E8EMU3101D	CE	100 UF 25V	25ZLG100MEFC6.3*11	1
C7011	X-CQGTB0415K	CC	0.1 UF 50V B	UP050B104K-A-BZ	1
C7012	X-CS0PB03Q5K	CC	0.47 UF 25V B	GRM188B31E474KA75D	1
C7013	X-CS0PB0413K	CC	0.001 UF 50V B	C0603X7R102K500NT	1
C7015	X-CS0PB04H3K	CC	0.0022UF 50V B	C0603X7R222K500NT	1
C7016	X-CS0PCH4Q2J	CC	470 PF 50V CH	C0603CG471J500NT	1
C7017	X-CS0PB0414K	CC	0.01 UF 50V B	C0603X7R103K500NT	1

ELECTRICAL REPLACEMENT PARTS LIST

*** DIODES ***

⚠ D504	X-D7KZ385E20	DIODE VARISTA		S14K385E2S5M4	1
⚠ D505	X-D4CTN40060	DIODE SILICON		1N4006-A5	1
D506	X-D4JX001F50	DIODE SILICON		1F5	1
⚠ D507	X-D4JXRM11C0	DIODE SILICON		ZRM11C	1
⚠ D508	X-D4JXRM11C0	DIODE SILICON		ZRM11C	1
⚠ D510	X-D4JXRM11C0	DIODE SILICON		ZRM11C	1
⚠ D511	X-D4JX001F50	DIODE SILICON		1F5	1
D512	X-DJBUA12012	DIODE ZENER		HZS12NB2	1
⚠ D513	X-D4JXARS010	DIODE SILICON		SARS01	1
⚠ D514	X-D28A10A200	DIODE SILICON		FCF10A20	1
⚠ D516	X-D1VT001330	DIODE,SILICON		1SS133T-77	1
D517	X-DE7RB1102B	DIODE ZENER		UDZSNP11B TE-17	1
⚠ D518	X-D4JXRM11C0	DIODE SILICON		ZRM11C	1
⚠ D523	X-D28A10A080	DIODE SCHOTTKY BARRIER		FCHS10A08	1
⚠ D527	X-DJBUA33012	DIODE ZENER		HZS33NB2	1
⚠ D528	X-DJBUA33012	DIODE ZENER		HZS33NB2	1
D7003	X-D27RB056L0	DIODE SCHOTTKY		RB056L-40TE25	1

*** ICS ***

⚠ IC501	X-ICAJ056400	POWER IC CONTROL		FA5640N-D1-TE1	1
⚠ IC502	X-I1KJ9A431A	VARIABLE SHUNT REGULATOR TAPE		KIA431A-AT	1
⚠ IC505	X-000220002W	PHOTO COUPLER		PS2561AL1-1-V(W)	1
IC7001	X-ILYD0887D0	LED DRIVER IC		NR887D	1

*** TRANSISTORS ***

⚠ Q501	X-TK1009N900	FET		FMV09N90E	1
Q502	X-TAAA1504SY	TRANSISTOR SILICON		KTA1504S_Y_RTK	1
Q503	X-TNAAC05002	COMPOUND TRANSISTOR		KRC103SRTK	1
Q504	X-TNAAC05002	COMPOUND TRANSISTOR		KRC103SRTK	1

*** COILS ***

B7001	X-024HT03564	CORE,BEADS		W4BRH3.5X6X1.0	1
B7002	X-024HC13914	CORE,BEADS		HCB3216KF-391T20	1
⚠ L501	X-029B000187	COIL,LINE FILTER		JLB24123	1
L503	X-02167E100K	COIL	10 UH	TSL0808RA-100K2R	1
L504	X-02167E100K	COI	10 UH	TSL0808RA-100K2R	1
L7002	X-021D0N220M	COIL	22 UH	PF13-220-OS	1

*** TRANSFORMERS ***

⚠ T501	X-048128042Z	TRANSFORMER,SWITCHING		8128042Z	1

*** JACKS ***

⚠ J502	X-064Q2A0004	JACK,AC		CCT2302-0721C	1

*** CONNECTORS ***

CP501	X-069E7G0630	CONNECTOR PCB SIDE		00_6216_016_000_808+	1
CP7001	X-069EV73030	CONNECTOR PCB SIDE		00_6232_007_006_800+	1

*** FUSES ***

⚠ F501	X-0805T02501	FUSE		SCT 2.5A	1

*** THERMISTOR ***

⚠ TH501	X-DSVD8E4R7M	THERMISTOR		B57153S0479A001	1

ELECTRICAL REPLACEMENT PARTS LIST

*** OTHERS ***

EL2401	X-124116281A	EYE LET	EYE LET XRY16X28BD	9
EL2402	X-124120301A	EYE LET	EYE LET XRY20X30BD	2
SH502	X-126D000045	TERMINAL PIN	YQ-12	1
SH503	X-126D000045	TERMINAL PIN	YQ-12	1
SH505	X-126D000045	TERMINAL PIN	YQ-12	1
SH507	X-126D000045	TERMINAL PIN	YQ-12	1

OPERATION PCB ASS'Y

*** PCB ***

PCB270	X-A3LJ03W270P	OPERATION PCB ASS'Y	CEK600A	1

*** RESISTORS ***

R2264	X-R808R9331J	RC 330 OHM 1/16W	0402WGJ0331TCE	1
R2265	X-R808R9103F	RC 10K OHM 1/16W	0402WGF0103TCE	1
R2266	X-R808R9183F	RC 18K OHM 1/16W	0402WGF1802TCE	1
R2267	X-R808R9333J	RC 33K OHM 1/16W	0402WGJ0333TCE	1
R2268	X-R808R9103J	RC 10K OHM 1/16W	0402WGJ0103TCE	1
R2269	X-R808R9822J	RC 8.2K OHM 1/16W	0402WGJ0822TCE	1
R2271	X-R808R9392J	RC 3.9K OHM 1/16W	0402WGJ0392TCE	1
R2272	X-R808R9561J	RC 560 OHM 1/16W	0402WGJ0561TCE	1
R2273	X-R808R9562F	RC 5.6K OHM 1/16W	0402WGF5601TCE	1
R2274	X-R808R9223F	RC 22K OHM 1/16W	0402WGF2202TCE	1
R2278	X-R808R9102J	RC 1K OHM 1/16W	0402WGJ0102TCE	1
R2279	X-R808R9102J	RC 1K OHM 1/16W	0402WGJ0102TCE	1
R2280	X-R808R9102J	RC 1K OHM 1/16W	0402WGJ0102TCE	1
R2281	X-R808R9102J	RC 1K OHM 1/16W	0402WGJ0102TCE	1
R2282	X-R808R9102J	RC 1K OHM 1/16W	0402WGJ0102TCE	1
R2283	X-R808R9102J	RC 1K OHM 1/16W	0402WGJ0102TCE	1
R2284	X-R808R9102J	RC 1K OHM 1/16W	0402WGJ0102TCE	1

*** CAPACITORS ***

C2201	X-CS0PB0P17M	CC 10 UF 6.3V B	GRM188B30J106ME69D+A01	1
C2202	X-CS0UB0314K	CC 0.01 UF 25V B	GRM155B11E103KA01D	1
C2203	X-CS0UB0314K	CC 0.01 UF 25V B	GRM155B11E103KA01D	1
C2225	X-CS0UB0N15K	CC 0.1 UF 10V B	C0402X5R104K100NY	1
C2226	X-CS0UB03H4K	CC 0.022 UF 25V B	C0402X7R223K250NY	1
C2227	X-CS0UB03H4K	CC 0.022 UF 25V B	C0402X7R223K250NY	1
C2228	X-CS0UB03H4K	CC 0.022 UF 25V B	C0402X7R223K250NY	1
C2229	X-CS0UB03H4K	CC 0.022 UF 25V B	C0402X7R223K250NY	1
C2230	X-CS0UB03H4K	CC 0.022 UF 25V B	C0402X7R223K250NY	1
C2231	X-CS0UB03H4K	CC 0.022 UF 25V B	C0402X7R223K250NY	1
C2232	X-CS0UB03H4K	CC 0.022 UF 25V B	C0402X7R223K250NY	1

*** DIODES ***

D2204	X-DGERMA1110	DIODE SILICON	MA111-(TX)	1

*** ICS ***

IC2204	X-IG6N0AT480	MCU 8BIT W/4K FLASH Q-TOUCH	ATTINY48-MU	1

ELECTRICAL REPLACEMENT PARTS LIST

*** COILS ***

B2201	X-024HC51023	CORE,BEADS	FCM1608KF-102T02FCM1608KF-102T02	1
B2202	X-024HC51023	CORE,BEADS	FCM1608KF-102T02	1
B2203	X-024HC51023	CORE,BEADS	FCM1608KF-102T02	1
B2204	X-024HC51023	CORE,BEADS	FCM1608KF-102T02	1

*** OTHERS ***

CP2204	X-06GG240059	CONNECTOR PCB SIDE	A2001WR-S04-T	1

AND OTHERS

*** CONNECTORS ***

CD805	X-06CH242503	CORD CONNECTOR	CH242503	1
CD805	X-06E8242501	CORD CONNECTOR	E8242501	1
CD3004	X-122H0G0501	CORD JUMPER	2H0G0501	1

*** TUNER ***

TU001	X-0164E03021	DIGITAL TUNER	TDTK-G731D(A)	1

*** OTHERS ***

BT001	X-141U004021	BATTERY,MANGAN	AAA(R03)	1
BT002	X-141U004021	BATTERY,MANGAN	AAA(R03)	1
CD2801	X-06EH2U1011	CORD CONNECTOR	EH2U1011	1
CD7601	X-06E8232206	CORD CONNECTOR	E8232206	1
MAIN001	X-1564Y00005	MAIN UNIT	T.MT5310.91A	1
SP301	X-070Y433020	SPEAKER	S0307F08-F	1

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

SPEC.NO.	M3LJ-03W
O/R NO.	F233167